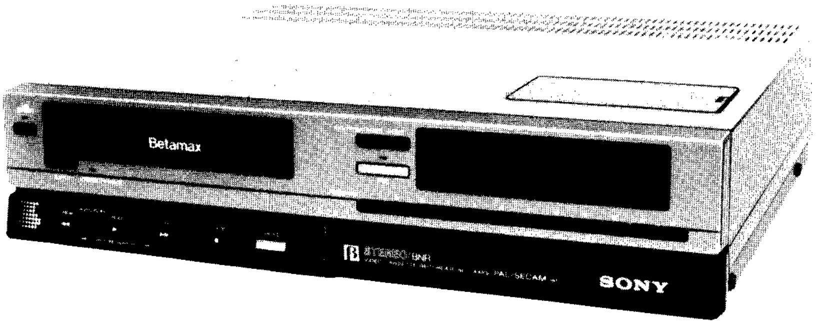
SL-C44PS
RMT-216

SERVICE MANUAL

West Germany Model



October, 1983

711B CHASSIS

Refer to separate adjustment manual, Part number 9-972-267-81.

SPECIFICATIONS

System

Video recording system	Rotary two-head helical scanning
Video signal	CCIR standards, PAL and DDR SECAM colour
Aerial input	75-ohm, asymmetrical aerial socket
Zweiton system	Two-carrier system
Channel coverage	VHF : Western European channels E2-12 UHF : Western European channels E21-68 (Up to 12 programmes can be preset.)
RF output signal	UHF channels E30 to E39 (variable) 75 ohms, unbalanced

Video

Input	VIDEO IN : BNC connector 1.0 V $^{+1.0}_{-0.5}$ V (p-p) 75 ohms, unbalanced, sync negative
Output	VIDEO OUT : BNC connector 1.0 V (p-p) ±0.1 V (p-p) 75 ohms, unbalanced, sync negative
Horizontal resolution	260 lines
Signal-to-noise ratio	Colour : Better than 40 dB B/W : Better than 43 dB

Audio

Input	AUDIO IN : phono jacks 47 kilohms, −10 dBs (0 dBs = 0.775 V rms)
Output	AUDIO OUT : phono jacks Load impedance less than 10 kilohms −10 dBs with 47 kilohms load, unbalanced
Frequency response	50 Hz to 10 kHz
Signal-to-noise ratio	Better than 43 dB (BNR ON)
Audio distortion	Less than 4% at 400 Hz

Video/Audio

Output	AV: 6-pin DIN connector

Tape transport

Tape speed	18.73 mm/sec.
Maximum recording time	2 hours 10 min. (with Sony L-500 cassette) 3 hours 15 min. (with L-750)
Fast forward/rewind time	Within 5 min. (with L-500)

Timer

Clock	Crystal lock
Time indication	24-hour cycle
Timer setting	Only for recording 2 events/week, adjustable for any day or for all 7 days of the week
Power back-up	Back-up duration of 3 minutes minimum at one time

– Continued on next page –

Beta VIDEO CASSETTE RECORDER

SONY®

MICROFILM

Consumer VIDEO

General

Power requirements	220 V ac ±10%, 50/60 Hz
Power consumption	44 W
Storage temperature	−20°C to +65°C (−4°F to +149°F)
Operating temperature	5°C to 40°C (41°F to 104°F)
Dimensions	Approx. 430 × 105 × 365 mm (w/h/d) (17 × $4^{1}/_{4}$ × $14^{3}/_{8}$ inches) including projecting parts and controls
Weight	Approx. 10 kg (22 lbs 1 oz) net

Accessories supplied

75-ohm coaxial cable for recorder to TV connection	1
Remote Commander RMT-216 with two IEC designation R6 batteries	1
RF channel adjustment tool	1

Design and specifications subject to change without notice.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

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SECTION 1
GENERAL

1-1. PRECAUTIONS

On safety

- This unit operates on 220 V ac, 50/60 Hz.
- Should any solid object or liquid fall into the cabinet, turn off the unit and have it checked by qualified personnel before operating it any further.
- To disconnect the mains lead (ac power cord), pull it out by the plug. Never pull the lead itself.

On installation

- Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation grille.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit and cassette tapes away from equipment with strong magnets, such as a microwave oven, large loudspeakers, etc.

On operation

- When the unit is not to be used for a long period, turn the power off to conserve energy and to extend the useful life of your unit.
- Remove and store video cassettes after recording or playback.

On cleaning

Clean the cabinet, panel and controls with a dry soft cloth. Do not use a moistened cloth or any type of solvent, such as alcohol or benzine, which might damage the finish.

On repacking

Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

On colour broadcasting systems

This machine is designed to record and playback using the PAL and DDR SECAM colour standards. Recording and playback of video sources based on other colour systems cannot be guaranteed.

If you have any questions about this unit, contact your Sony dealer.

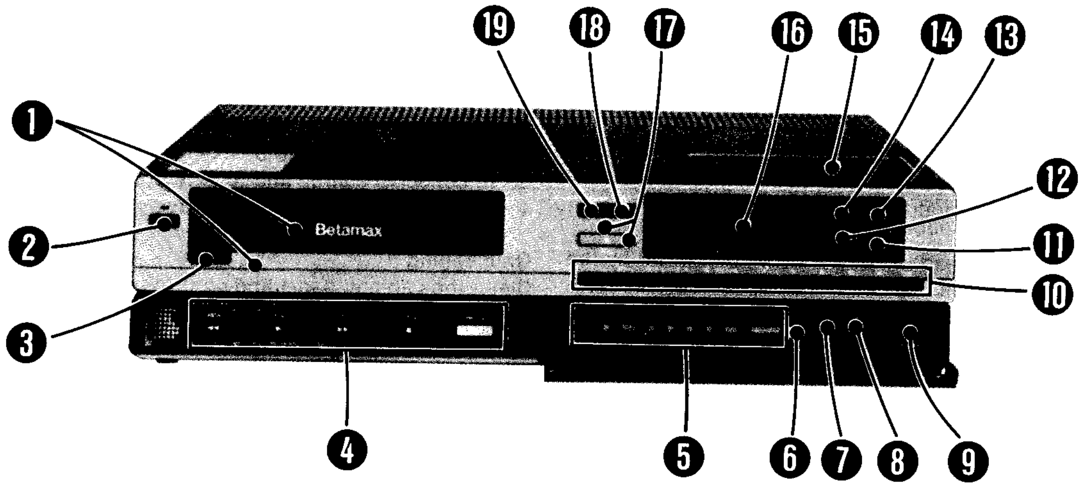
SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

1-2. LOCATION AND FUNCTION OF CONTROLS

Front



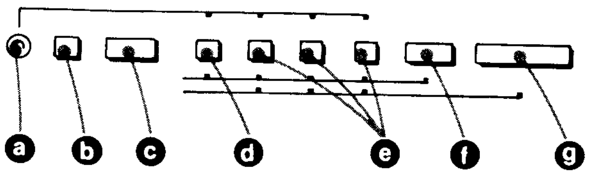
❶ Cassette compartment and CASSETTE INSIDE lamp
Insert a cassette after turning on the recorder. The lamp lights up when a cassette is inside.

❷ ON/STANDBY button and lamp
Press to turn on the unit. The lamp will light up. Press again to turn it off.
The timer section will continue to operate and the time will be displayed even if the ON/STANDBY button is off so long as the ac power cord is connected to the wall outlet.

❸ EJECT button
Press to remove the cassette. This button does not function when the recorder is turned off.

❹ Function buttons
► PLAY button : Press to play the tape back.
◄◄ REW button : Press to rewind the tape. Also used for the reverse picture search and skip scan operation.
►► FF button : Press to advance the tape rapidly. Also used for the forward picture search and skip scan operation.
■ STOP button : Press to stop the tape.
❚❚ PAUSE button : Press to stop the tape for a moment during recording or playback. A still picture will be seen during playback. Press again to release the pause mode.

❺ Timer setting section



a **CLOCK SET button :** Press to set the clock.
b **CLEAR button :** Press to clear the timer programme memorized.
c **TIMER SET button :** Press to set the turn-on/off time of a recording.
d **DAY button :** Press to set the turn-on day of a recording.
e **HOUR, 10 MIN and MIN buttons :** Press to set the turn-on/off time of a recording.
f **PROG button :** Press to select the TV programme to be recorded by the timer.
g **TIMER REC button :** Press to set the recorder in the timer recording stand-by mode.

❻ TV/VTR select button and VTR lamp
This button is operable when a TV is connected to the recorder's AV connector.
To view a TV programme selected by a PROGRAM select button on the recorder or to monitor the picture being recorded, press this button so that the VTR lamp lights up. When the PLAY button on the recorder is pressed, the recorder is automatically set in the VTR mode. To view a TV programme in the usual manner, press this button so that the lamp goes off. When the recorder is turned off, the recorder is automatically set in the TV mode.

❼ BNR (Beta Noise Reduction) switch
In recording: The sound is recorded with the BNR system on regardless of the position of this switch.
In playback: For a tape recorded with the BNR system on, set the BNR switch to ON. For a tape recorded on another recorder which does not have a BNR switch, set the switch to OFF.

❽ INPUT SELECT switch
Select the programme to be recorded.
LINE : for recording signals connected to the VIDEO IN and AUDIO IN jacks
TUNER : for recording TV programmes

❾ TRACKING control
If streaks or snow appears during the playback of a tape recorded on another recorder, turn this knob to obtain the best possible picture.

❿ PROGRAM select buttons
Select the number of the programme to be recorded or to be viewed. The selected programme number will appear in the display window.

⓫ BILINGUAL select button
Selects the language of the bilingual TV programme.

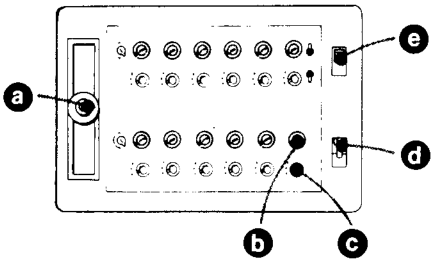
⓬ STEREO A, B lamps
When a stereo TV programme is being received, both indicators light up. When a bilingual programme is being received, either the A or B indicator lights up. These indicators do not activate when a pre-recorded stereo or bilingual tape is played.

⓭ REMOTE SENSOR
Detects the remote control signal transmitted from the supplied Remote Commander.

⑭ TIMER REC lamp

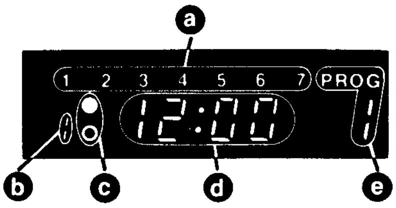
Lights when the TIMER REC button behind the front panel is pressed to set the recorder in the stand-by mode. It remains lit till the timer recording is finished.

⑮ Tuning compartment



- a **Tuning aid:** Use to select the band and to turn the tuning control. The indication at its end shows the approximate position within the selected band.
- b **Tuning control:** With the supplied tuning aid, turn until the desired station is properly tuned in.
- c **Band-select switch:** Using the supplied tuning aid, set to V_L (channels E2 through E4), V_H (channels E5 through E12), or U (channels E21 through E68) according to the channel to be tuned in.
- d **AFT switch:** When the tuning compartment is closed, the automatic fine tuning circuit locks in the signal and maintains a sharp picture.
- e **TEST SIGNAL switch:** Set to ON to obtain a test pattern.

⑯ Display window



- a **Day of the week indication:** Shows the day of the week on which the timer-activated recording will take place.
- b **Event number**
- c **Turn-on and turn-off setting indications:** The "●" mark shows you are setting the turn-on time and the "O" mark shows the turn-off time.
- d **Time and counter display:** Usually shows the present time. When the TIMER/COUNTER button is pressed to COUNTER, the display shows the counter number.
- e **Programme number:** Shows the programme number selected with the programme select buttons. When the INPUT SELECT switch is set to LINE to record signals from the VIDEO IN and AUDIO IN jacks, the indication will change to "AU".

⑰ REC button and lamp

Press to start recording. The lamp will light up.

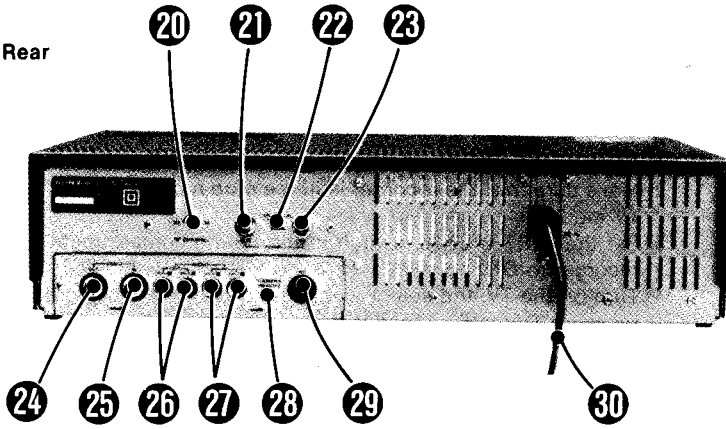
⑱ COUNTER RESET button

Press to set the tape counter reading to "0000".

⑲ TIMER/COUNTER button

Press to set the display to the tape counter. To reset to clock, press it again.

Rear



⑳ RF CHANNEL screw

If there is interference on the factory preset channel for RF output and the signal of this recorder unit cannot be displayed clearly on the TV screen, adjust this screw with the supplied screwdriver.

㉑ AERIAL OUT socket

Connect the aerial input of the TV receiver using the supplied cable.

㉒ DX/LOCAL switch

Normally set this switch to DX. If the TV signal is very strong, set the switch to LOCAL.

㉓ AERIAL IN socket

Connect the aerial cable.

㉔ VIDEO OUT jack (BNC type)

Connect to the video input of another video cassette recorder or a video monitor.

㉕ VIDEO IN jack (BNC type)

Connect to the video output of a camera, another video cassette recorder, etc.

㉖ AUDIO OUT jacks (phono type)

Connect to the audio inputs of a video monitor or a video cassette recorder.

㉗ AUDIO IN jacks (phono type)

Connect to the audio outputs of a camera or another video cassette recorder.

㉘ CAMERA REMOTE jack (special mini jack)

For camera recording, connect an ac adaptor to this jack.

㉙ AV connector (6-pin, DIN)

Connect to the 6-pin or 8-pin DIN connector of a TV receiver or colour monitor. This connector provides the video and audio output signal.

㉚ AC mains lead

1-3. ADJUSTING THE TV

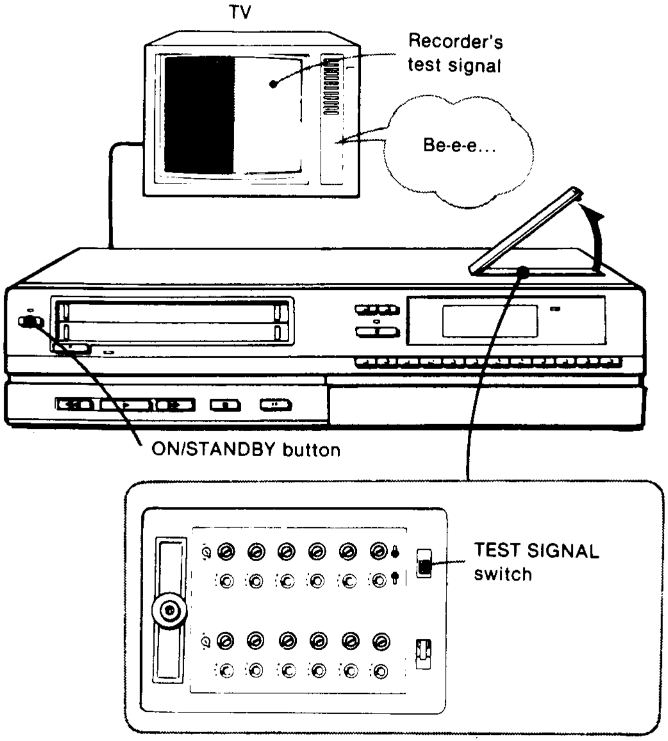
One of the television channels must be adjusted to receive the signal from the recorder.

1 After making the connections, press the ON/STANDBY button.
2 Make sure that the recorder is in the stop mode and the TV is in TV mode.
3 Set the TEST SIGNAL switch in the tuning compartment of the recorder to ON.
4 Turn on the TV and select a channel which is not being used to receive a TV station. Tune the channel until you see a clear black and white pattern on the TV screen and you hear a continuous tone. This is the recorder's test signal.
● Note that the test signal is transmitted on a channel between UHF channels 30 and 39.

If the test picture is free of disturbance, the TV adjustment is complete. Set the TEST SIGNAL switch to OFF.
If the test picture is not free of disturbance, proceed with the next adjustment.

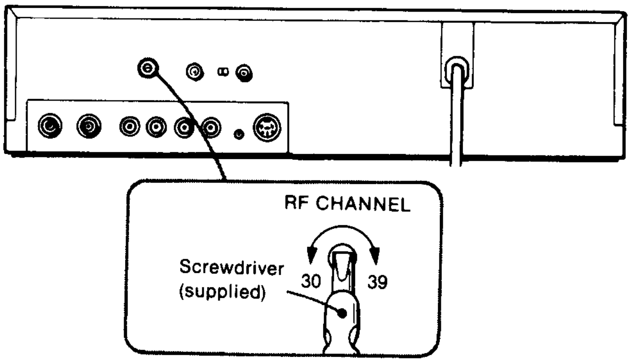
Whenever you use the video recorder, you should set the TV to the channel selected in this adjustment.

—If you are not sure how to adjust your TV, please refer to the TV's instruction manual or consult your dealer.



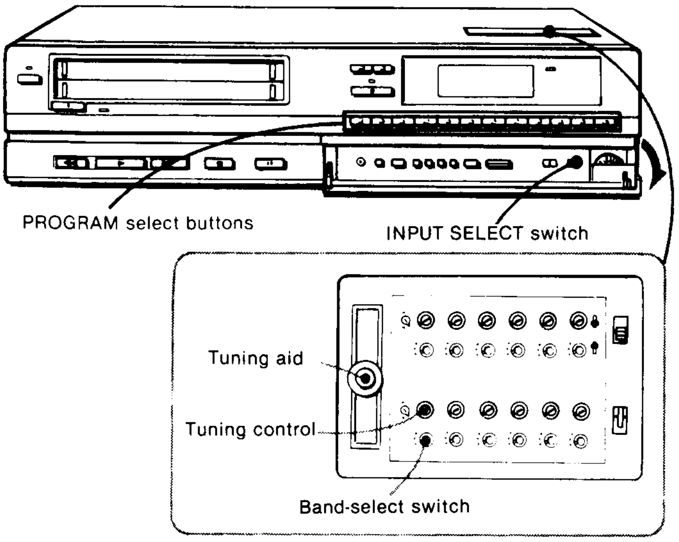
If the test picture is not free of disturbance

1 Reset the TEST SIGNAL switch to OFF.
2 Adjust the channel of the TV to a channel between UHF channels 30 and 39 with the tuning control or the fine tuning control on the TV, so that the TV screen shows no picture and so that a steady rustling sound or no sound is heard.
3 Set the TEST SIGNAL switch to ON again.
4 Slowly turn the RF CHANNEL screw on the back of the recorder with the supplied screwdriver, until you see an undistorted test picture on the TV screen.
5 Now the TV adjustment is complete. Reset the TEST SIGNAL switch to OFF.



1-4. TV STATION PRESETTING

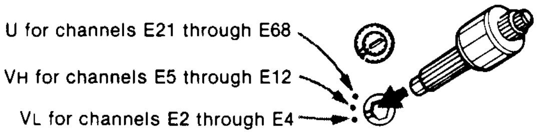
Once you have tuned your TV to the recorder, the next step is to tune the recorder to all the TV stations that you can receive in your area. Up to 12 TV stations can be preset in any order.


PROGRAM select buttons
INPUT SELECT switch
Tuning aid
Tuning control
Band-select switch

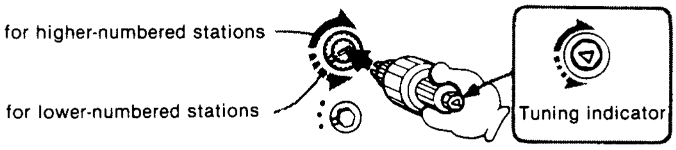
PRESETTING PROCEDURE

Make sure that your TV is set to display the picture from the recorder.

1 Set the INPUT SELECT switch to TUNER.
2 Press the PROGRAM select button to be preset.
3 Open the tuning compartment and, using the supplied tuning aid, set the band-select switch corresponding to the selected programme number to one of the three positions :


U for channels E21 through E68
VH for channels E5 through E12
VL for channels E2 through E4

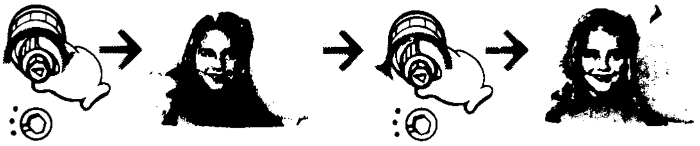
4 Using the other side of the tuning aid, turn the tuning control until the desired station is properly tuned in.
The indicator on the top of the tuning aid shows the approximate position in the selected band.


for higher-numbered stations
for lower-numbered stations
Tuning indicator

If you keep turning the tuning control clockwise, you will again get to the lowest-numbered station within that band.

When the picture appears, slowly turn the tuning control to the right until a herringbone pattern appears in the coloured part of the picture, then turn the control back until the picture is perfectly clear.

To identify the stations, consult a newspaper or TV programme guide.



5 Repeat steps 2, 3 and 4 for all the other stations.
6 Close the tuning compartment.
AFT (automatic fine tuning) circuit then locks in the signal and maintains a sharp picture.

After presetting the TV stations, you can use the programme select buttons of the recorder to tune in a station for viewing as well as recording.

1-5. CLOCK SETTING

When you connect the mains lead to a wall outlet, the clock indicates "0 : 00" with the two dots blinking.

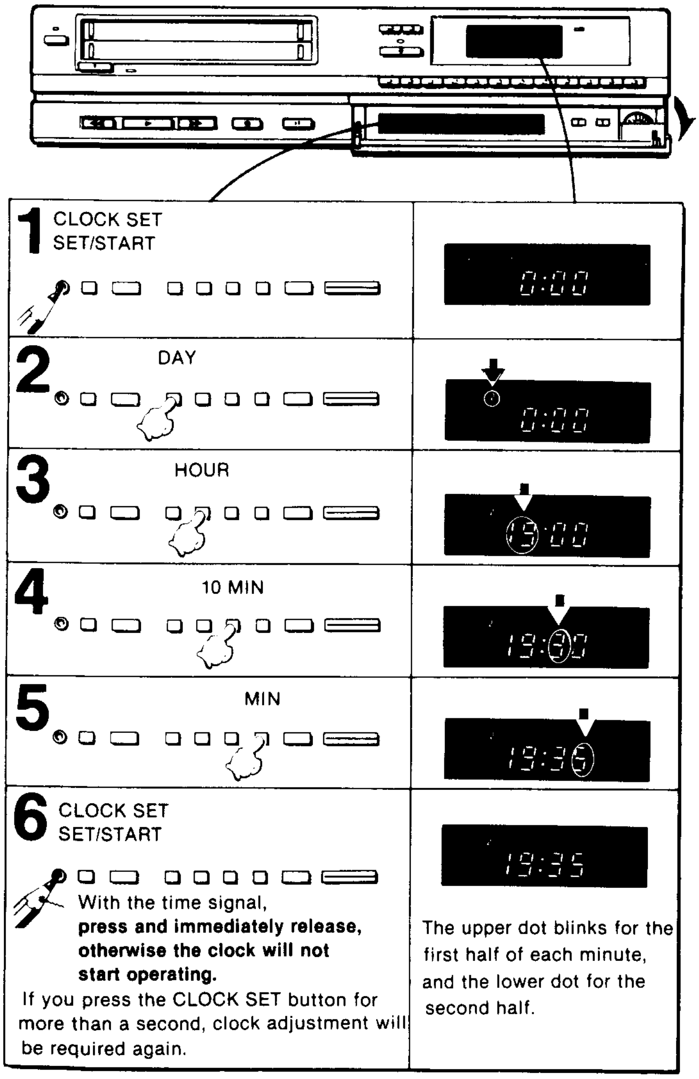
Example : To set the clock to 7 : 35 p.m. (19 : 35) on Tuesday*

*** Time indication**

AM				PM					
12 : 00 (midnight)	1 : 00		11 : 00	12 : 00 (noon)	1 : 00	2 : 00		10 : 00	11 : 00
↓ 0:00	↓ 1:00	·····	↓ 11:00	↓ 12:00	↓ 13:00	↓ 14:00	·····	↓ 22:00	↓ 23:00

Day indication

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
↓ 1	↓ 2	↓ 3	↓ 4	↓ 5	↓ 6	↓ 7



With the time signal, **press and immediately release, otherwise the clock will not start operating.**

If you press the CLOCK SET button for more than a second, clock adjustment will be required again.

The upper dot blinks for the first half of each minute, and the lower dot for the second half.

Zero second adjustment

Press the CLOCK SET button quickly (less than a second).

While the upper dot is blinking, the clock is set to the time displayed 00 second. For example, if the clock time is 7 : 30, 20 seconds, it is set to 7 : 30, 00 second.

While the lower dot is blinking, the clock advances one minute and is set to the time displayed 00 second. For example, if the clock time is 7 : 30, 40 seconds, it is set to 7 : 31, 00 second.

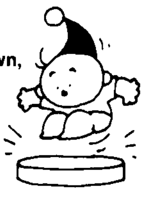
If you press the CLOCK SET button for more than a second, "0 : 00" blinks to show that the clock adjustment is required again.

When power has been interrupted for more than 3 minutes, the time indication "0 : 00" blinks, showing that the clock must be reset.

If power has been interrupted for less than 3 minutes, the displayed time remains correct.

The DAY, HOUR, 10 MIN and MIN buttons can be pressed in two ways :

When you hold a button down, the digits will advance continuously until the button is released.

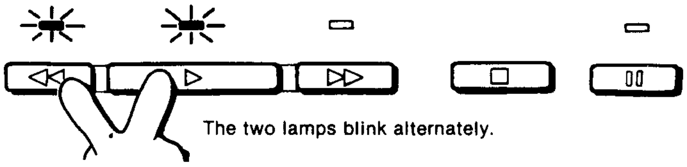


When you press and immediately release a button, the digits will advance by one.

1-6. AUTO PLAY

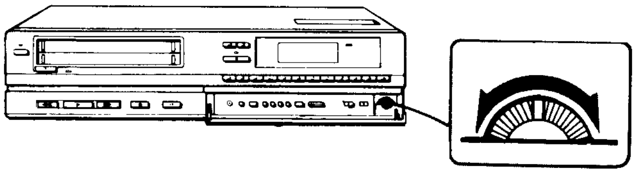
To playback from the beginning of the tape after rewinding

Press the ▶ PLAY button and ◀◀ REW button simultaneously in the stop mode. The lamps above these buttons blink alternately during rewinding.
After the tape is completely rewound, it will be automatically played back.


The two lamps blink alternately.

When playing back a tape recorded on another machine

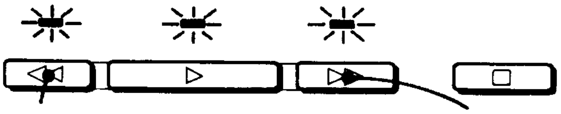
If streaks or snow appears, adjust the TRACKING control for the best possible picture.
Return the control to the centre position after playing back the tape.



1-7. TO SEARCH FOR A PARTICULAR SCENE

Picture search Viewing the picture at fast speed to find a particular scene

During playback


Keep ◀◀ pressed for high-speed reverse picture.

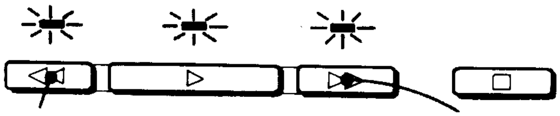
Keep ▶▶ pressed for high-speed forward picture.

Release the button at the desired point.
Normal playback will resume.

The picture search mode can also be started directly from the pause mode.

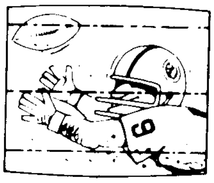
Skip Scan Viewing the picture momentarily during fast-forward or rewind

During rewind or fast forward mode


When rewinding the tape, keep ◀◀ pressed for high-speed reverse picture.

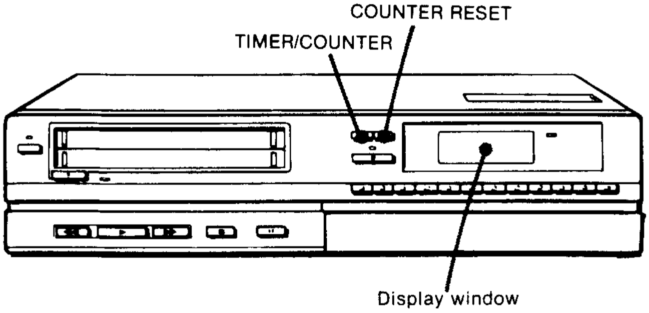
When rapidly advancing the tape, keep ▶▶ pressed for high-speed forward picture.

Release the button at the desired point.
The normal rewind or fast forward mode will resume.

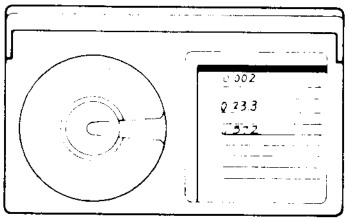

Streaks will appear during the picture search, the skip scan and the pause modes.

1-8. USE TO THE TAPE COUNTER

Turn on the power and press the TIMER/COUNTER button to display the counter reading in the display window.
To return the display to the present time, press the TIMER/COUNTER button again.



Before starting recording or playback, press the COUNTER RESET button to set the counter to "0000".
By noting the counter reading at the desired point, you can easily find that point later by referring to the counter.



Write the counter readings you want to remember on the label of the cassette.

Normal rewinding will stop at the tape counter's "0000" position. To rewind the tape further, press the ◀◀ button again.
With automatic rewinding from the tape end or for "auto play", the tape will not stop at the counter's "0000" position.

Notes

- The counter reading is automatically reset to zero when a cassette is newly inserted.
- While the power is off, the display shows the present time, regardless of the TIMER/COUNTER setting.
- The counter reading will be retained in the memory even after the power is turned off, as long as the cassette is in the cassette compartment.
- The tape counter does not operate when a blank, unrecorded tape is played.

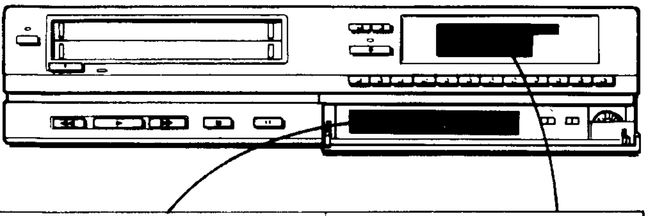
1-9. TIMER-ACTIVATED RECORDING

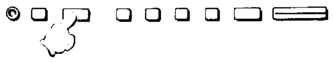
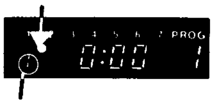
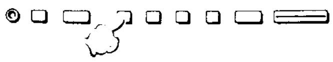
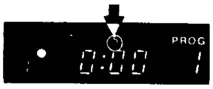
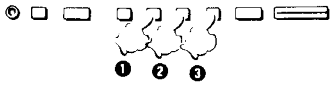
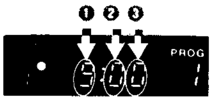
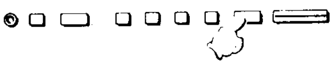
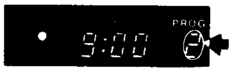
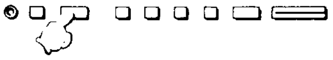
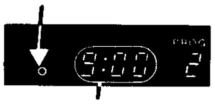
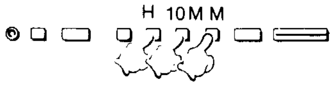
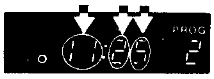
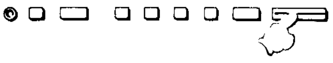
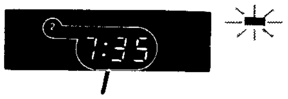
You can make one or two recordings within 7 days even when you are not at home. These recordings are identified as event 1 or event 2.

Check before setting the timer
- Is the clock set to the correct day and correct time? Timer setting can only be made after the clock has been set.
- Is a cassette inserted in the recorder?
- Is the cassette long enough to record the programmes?
- Does the cassette have a safety tab on the bottom?
- Is the INPUT SELECT switch set to TUNER?

Note: The timer cannot be set during recording, playback, or when the INPUT SELECT switch is set to LINE (The "AU" appears on the display window.).

Example: To record a PROG 2 broadcast from 9 : 00 a.m. to 11 : 25 a.m. on Friday.



Step	Button to be pressed.	Time display The segment to be set will blink.
1	TIMER SET  If the recorder is off, it will be turned on automatically.	Turn-on indication  Shows the event number. Event 1 always appears first.
2	Select the turn-on day. DAY  Indication changes as follows : 1234567 (everyday) → 1 (Monday) → 2 (Tuesday)... → 7 (Sunday)	
3	Set the turn-on time. H 10M M  ❶ ❷ ❸	❶ ❷ ❸ 
4	Select the programme to be recorded. PROG  For a dual-sound programme, select the language to be recorded. BILINGUAL	
5	TIMER SET 	Turn-off indication  Blinks.
6	Set the turn-off time. H 10M M  ❶ ❷ ❸	❶ ❷❸ 
7	TIMER REC  TIMER REC lamp lights up and the power is turned off. At the preset turn-on time, recording will start automatically and will stop at the preset turn-off time. If the inserted cassette is at its end or does not have the safety tab, the cassette will be automatically ejected.	TIMER REC  Present day and time

ONCE THE TIMER REC LAMP HAS LIT UP, NO FUNCTION OF THE RECORDER CAN BE ACTIVATED, except for checking the timer setting.
To operate the recorder after setting the timer for recording, press the TIMER REC button so that the TIMER REC lamp goes off. To reactivate the timer recording standby mode, be sure to press the TIMER REC button again.

To record to the end of the tape

Set the turn-off time to a time after the tape will reach its end.

If the tape reaches the end during the timer recording

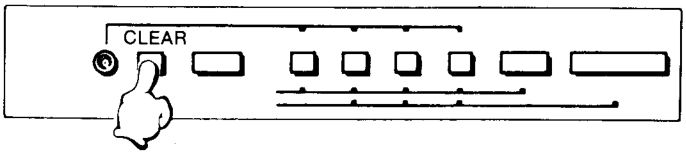
The recording will stop and the tape will be rewound to the beginning. Then after about a second, the recorder will be turned off.

To stop the on-going timer recording

Press the TIMER REC button so that the TIMER REC lamp goes off. The unit will be turned off automatically after about a second.

To erase the setting of an event

1. Press the TIMER SET button to display the event to be erased.
2. Press the CLEAR button. This event will be erased from the memory.



When a power interruption occurs before or during timer recording

If the clock shows "0 : 00" and the dots blink
All the timer settings have been erased. Reset the clock time and the timer settings.

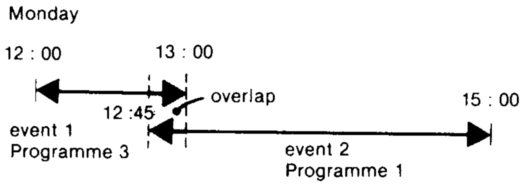
If the clock still shows the correct time but the dots blink
The power has been interrupted for less than 3 minutes.
The timer programmes are retained in the memory and the on-going timer recording will resume when the power is resupplied.
To stop the blinking, press any button in the timer-setting compartment.

ERROR INDICATIONS

If the ● and ○ indications as well as the event numbers blink when the TIMER REC button is pressed...
It means that the setting of these events overlap. Check the settings and eliminate the overlap.

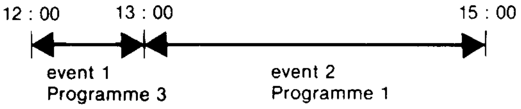
Example:

Timer setting



Even with this error indication, recording can be made.
In this case, the first preset recording continues to its turn-off point and then the next recording begins.

Realized recording



If the turn-on time of the 2 events is the same, recording of event 1 will be made.

TO CHECK THE TIMER SETTING

Press the TIMER SET button. Each time you press the button, the indication will change as follows :

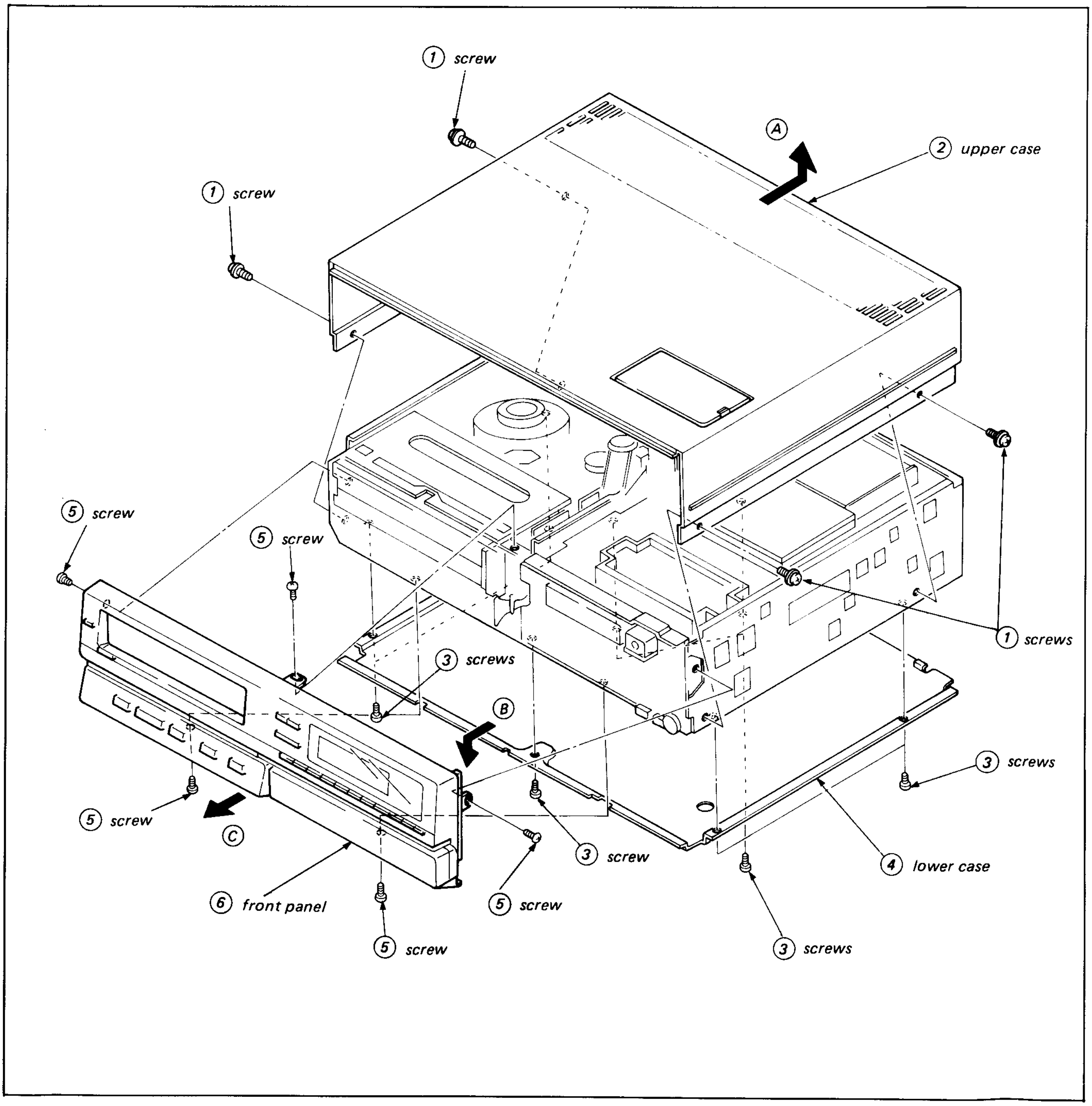
Example : Both event 1 and 2 have been programmed.
Turn-on day and time of event 1 → Turn-off day and time →
Turn-on day and time of event 2 → Turn-off day and time →
Present time

During actual timer recording, only the turn-off time of the event being recorded can be checked.

SECTION 2
DISASSEMBLY

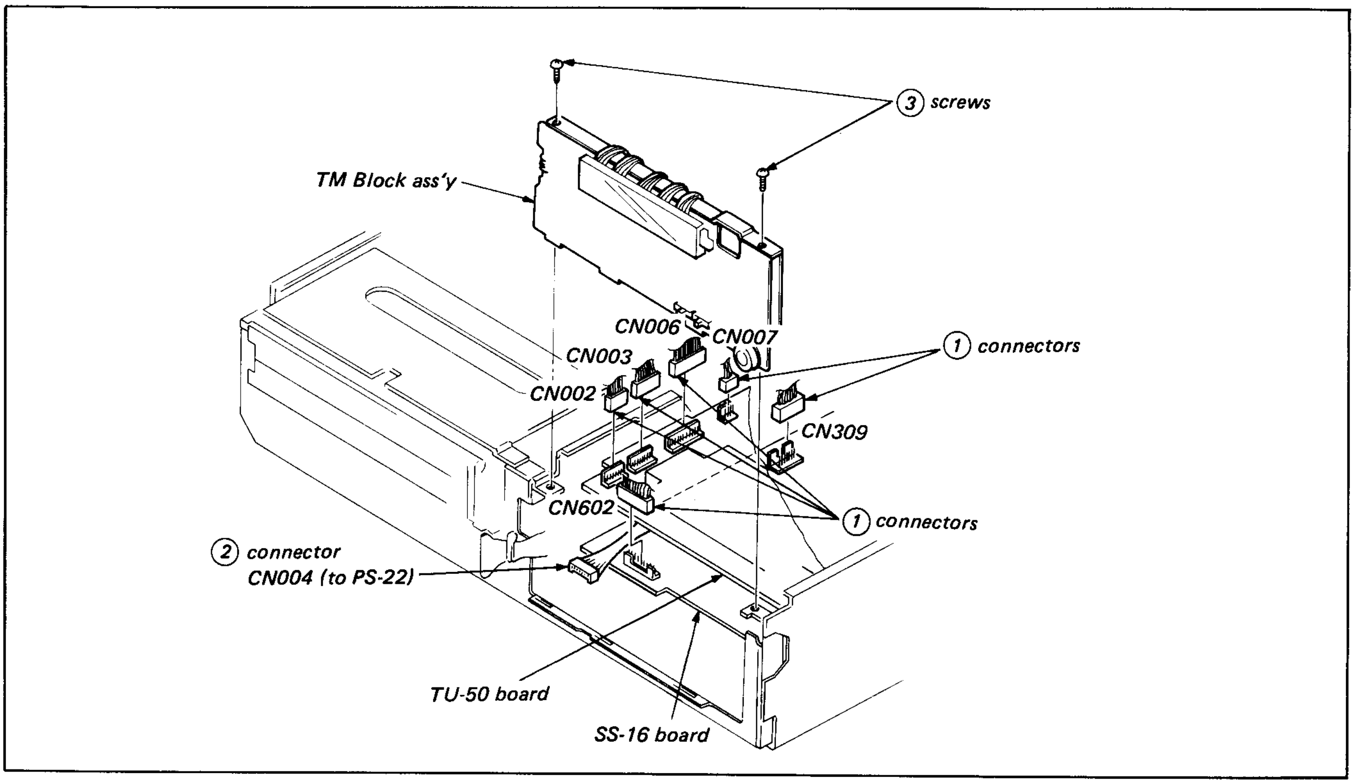
2-1. REMOVAL OF THE CASE AND FRONT PANEL

1) Remove the four screws ①.
2) Remove the upper case ② in the direction shown by the arrow Ⓐ.
3) Remove the seven screws ③ and the lower case ④ in the direction shown by the arrow Ⓑ.
4) Remove the five screws ⑤ and the front panel ⑥ in the direction shown by the arrow Ⓒ.


① screw
Ⓐ
② upper case
① screw
① screws
⑤ screw
⑤ screw
③ screws
Ⓑ
③ screws
⑤ screw
Ⓒ
③ screw
④ lower case
⑥ front panel
⑤ screw
⑤ screw
③ screws

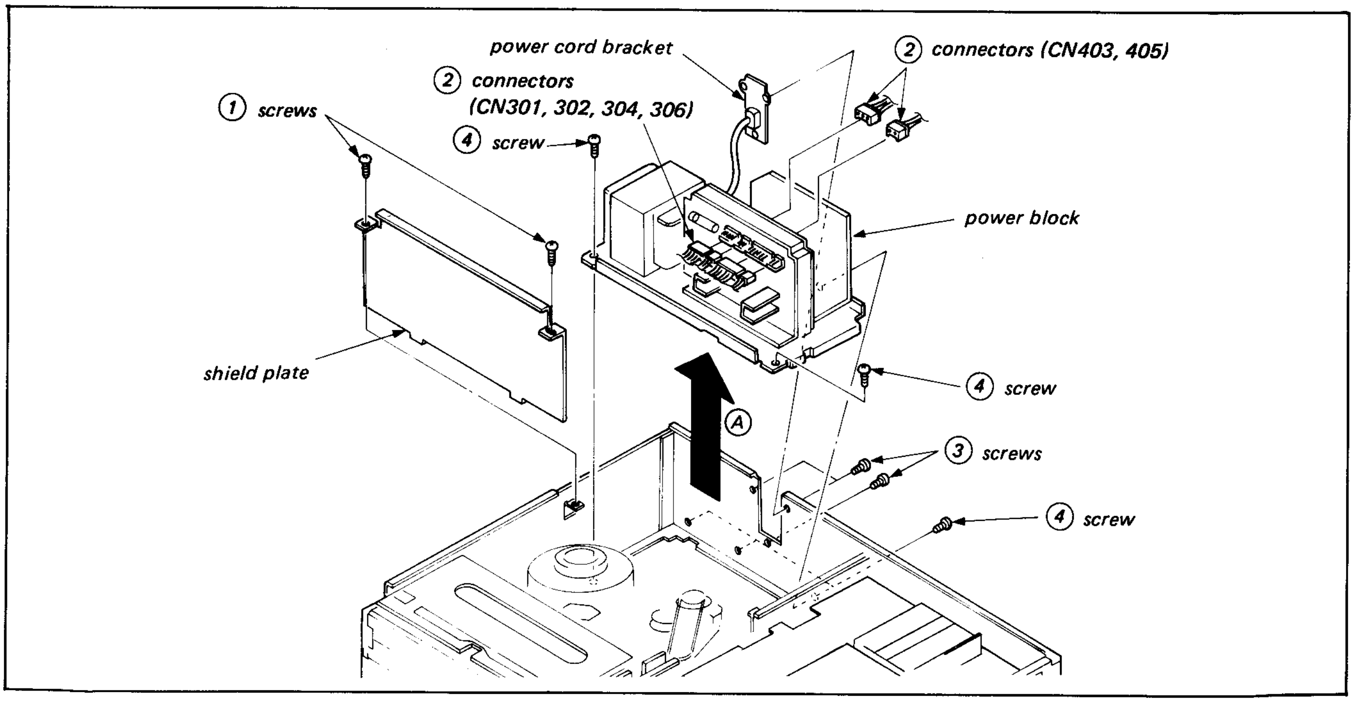
2-2. REMOVAL OF THE TM BLOCK ASS'Y

1) Pull out the six connectors ①.
2) Pull out the connector ②.
3) Remove the two screws ③ and the TM-block Ass'y.


③ screws
TM Block ass'y
CN006
CN007
CN003
① connectors
CN002
CN309
CN602
① connectors
② connector
CN004 (to PS-22)
TU-50 board
SS-16 board

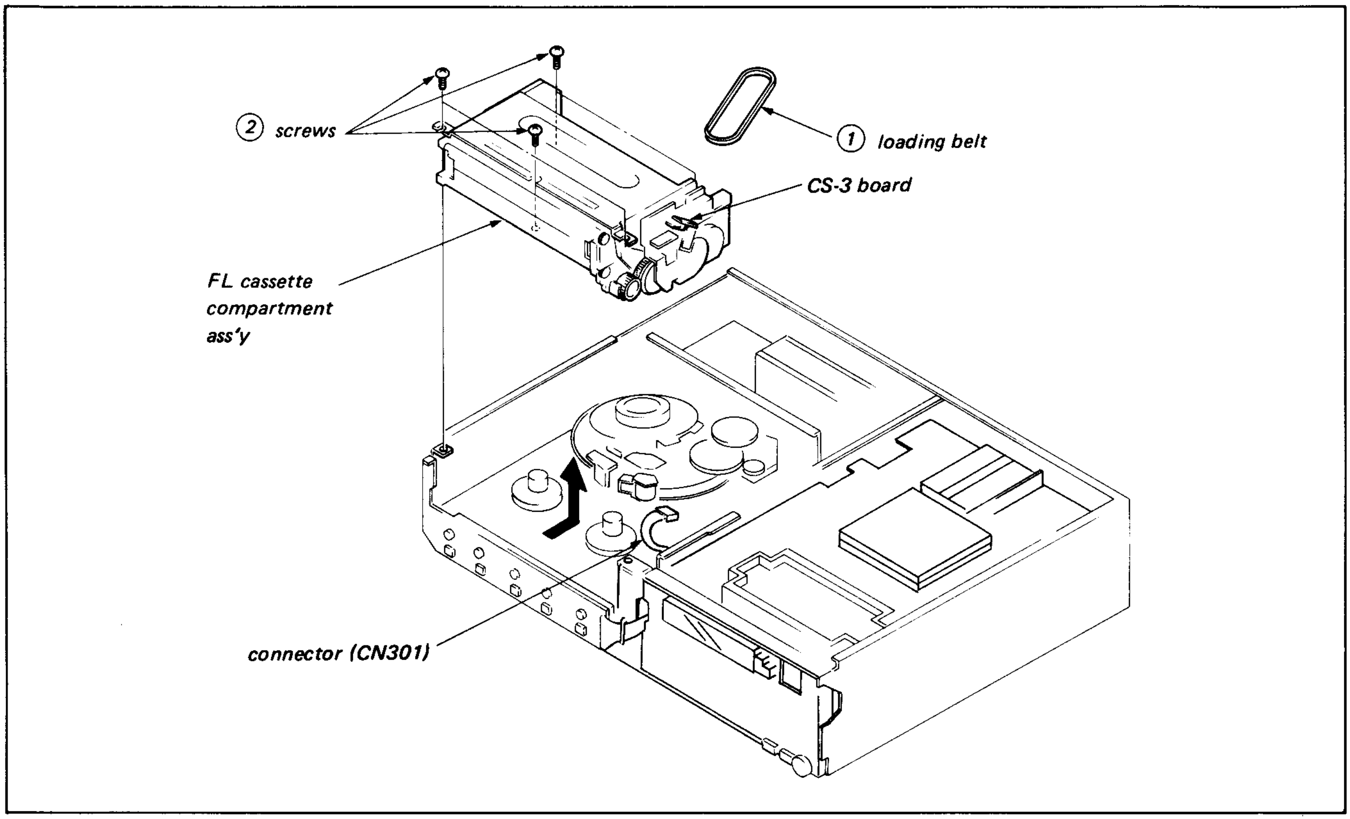
2-3. REMOVAL OF POWER BLOCK ASS'Y

1) Remove the two screws ①, and the shield plate.
2) Pull out the six connectors ②, (CN301, 302, 304, 306, 403, 405) power block side.
3) Remove the three screws ③ and the power cord bracket.
4) Remove the five screws ④, holding the power block.
5) Remove the power block in the direction shown by the arrow Ⓐ.


power cord bracket
② connectors (CN403, 405)
② connectors
(CN301, 302, 304, 306)
① screws
④ screw
power block
shield plate
④ screw
Ⓐ
③ screws
④ screw

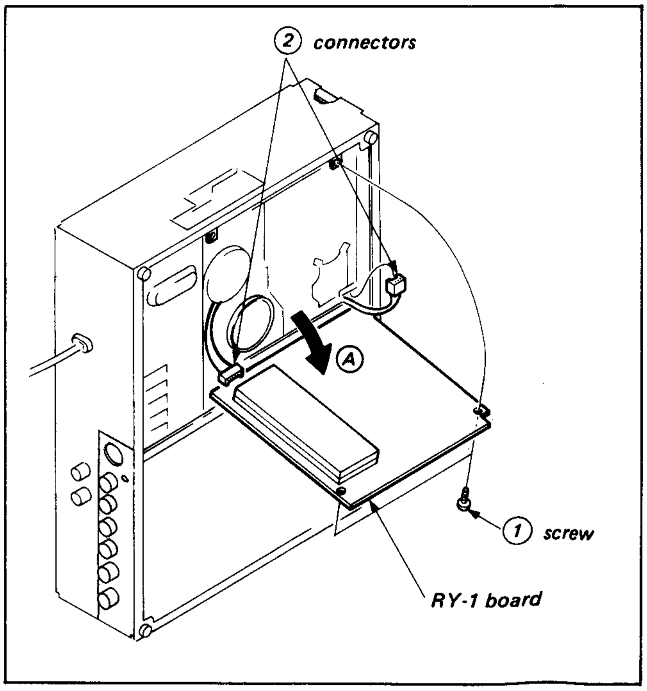
2-4. REMOVAL OF FL CASSETTE COMPARTMENT ASS'Y

1) Loosen the loading belt ① exerting a force on the threading motor.
2) Remove the five mounting screws ② of the FL cassette compartment.
3) Pull out the exposed connector from the CS-3 board (CN301) on the FL cassette compartment.
4) Lift the FL cassette compartment ass'y in the direction shown by the arrow to remove.


② screws
① loading belt
CS-3 board
FL cassette compartment ass'y
connector (CN301)

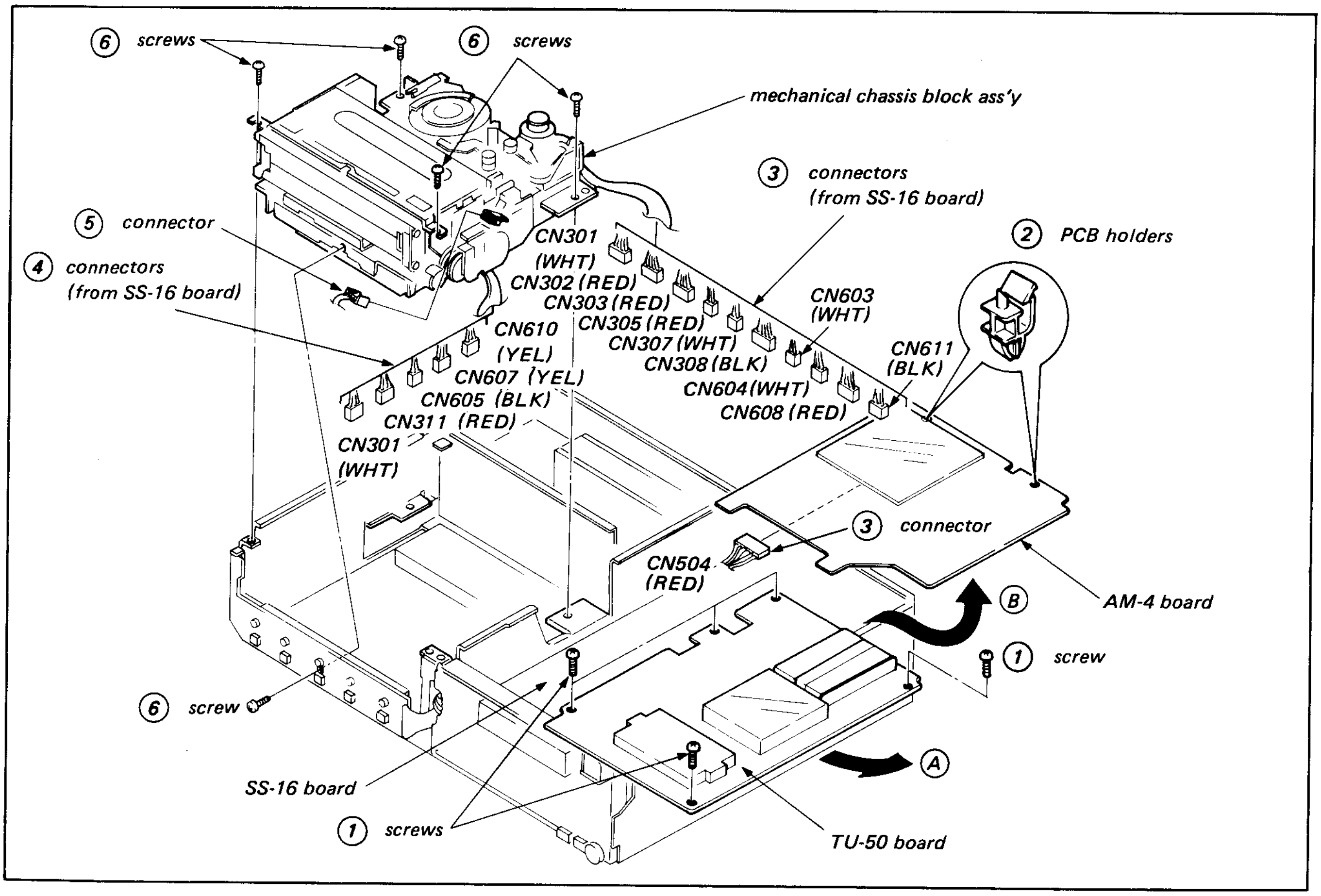
2-5. REMOVAL OF MECHANICAL CHASSIS BLOCK ASS'Y

(1)
1) Stand the set with the right side panel on the bottom.
2) Remove the two screws ①, holding the RY-1 board.
3) Pull out the two connectors ②.
4) Remove the RY-1 board in the direction shown by the arrow Ⓐ.


② connectors
Ⓐ
① screw
RY-1 board

(2)

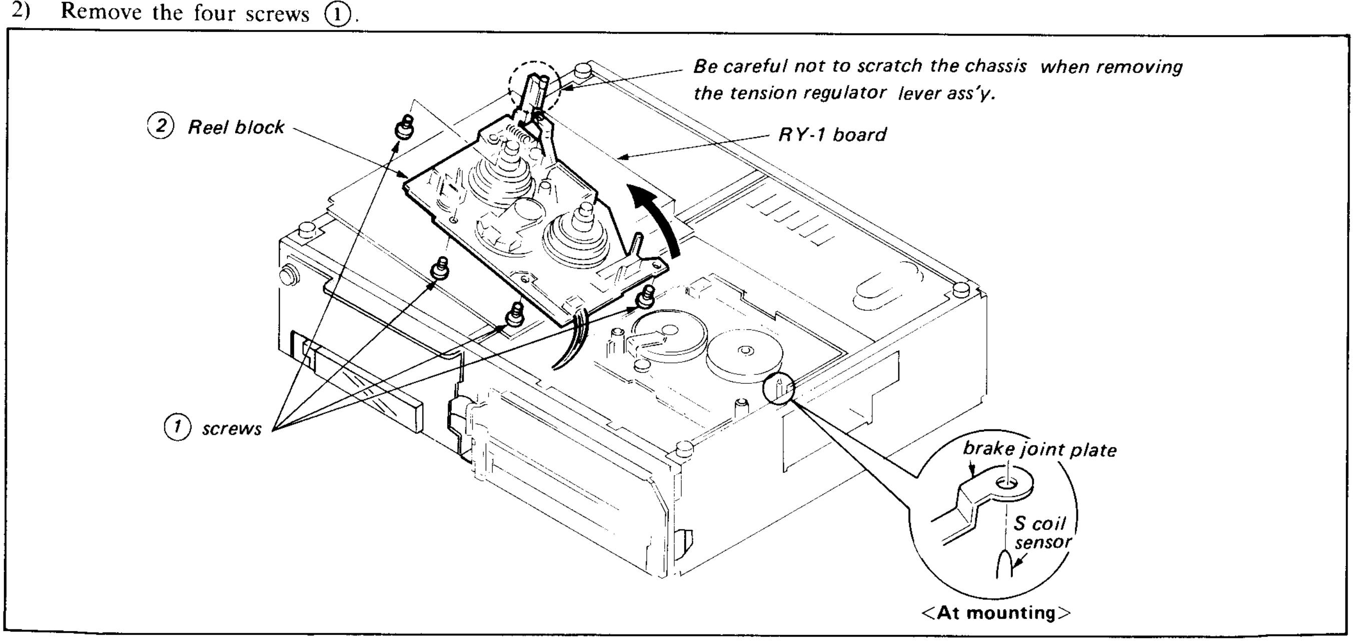
1) Remove the five screws ① and the TU-50 board in the direction shown by the arrow Ⓐ.
2) Remove the two PCB holders ② and the AM-4 board in the direction shown by the arrow Ⓑ.
3) Pull out the ten connectors ③ from the SS-16 board and pull out the rest one from AM-4 board.
4) Pull out the five connectors ④ from the SS-16 board and pull out the connector ⑤.
5) Remove the five screws ⑥ and the mechanical chassis block.



⑥ screws
⑥ screws
mechanical chassis block ass'y
③ connectors (from SS-16 board)
② PCB holders
⑤ connector
④ connectors (from SS-16 board)
CN301 (WHT)
CN302 (RED)
CN303 (RED)
CN305 (RED)
CN307 (WHT)
CN308 (BLK)
CN604 (WHT)
CN608 (RED)
CN603 (WHT)
CN611 (BLK)
CN610 (YEL)
CN607 (YEL)
CN605 (BLK)
CN311 (RED)
CN301 (WHT)
③ connector
CN504 (RED)
Ⓑ
AM-4 board
① screw
⑥ screw
Ⓐ
SS-16 board
① screws
TU-50 board

2-6. REMOVAL OF REEL ASS'Y

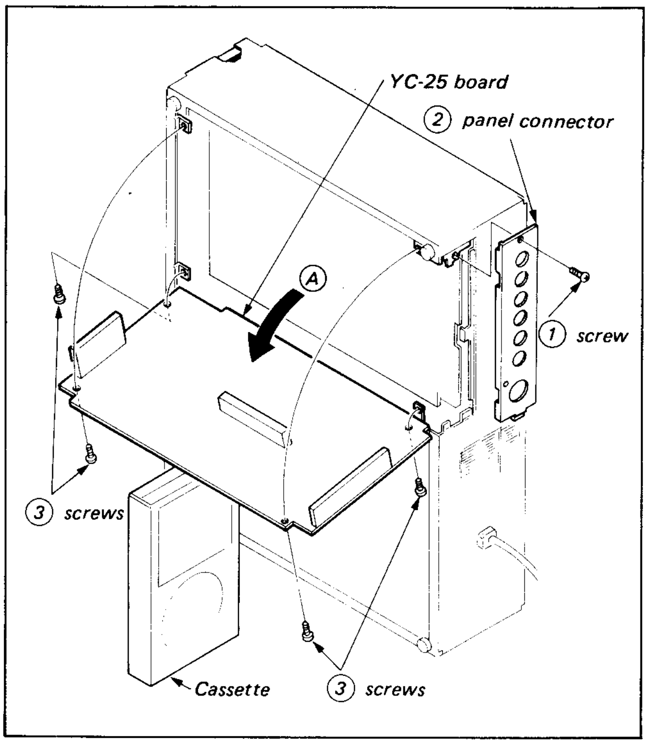
1) Place the set up side down.
2) Remove the four screws ①.
3) Remove the reel block ②.



Be careful not to scratch the chassis when removing the tension regulator lever ass'y.
② Reel block
RY-1 board
① screws
brake joint plate
S coil sensor
<At mounting>

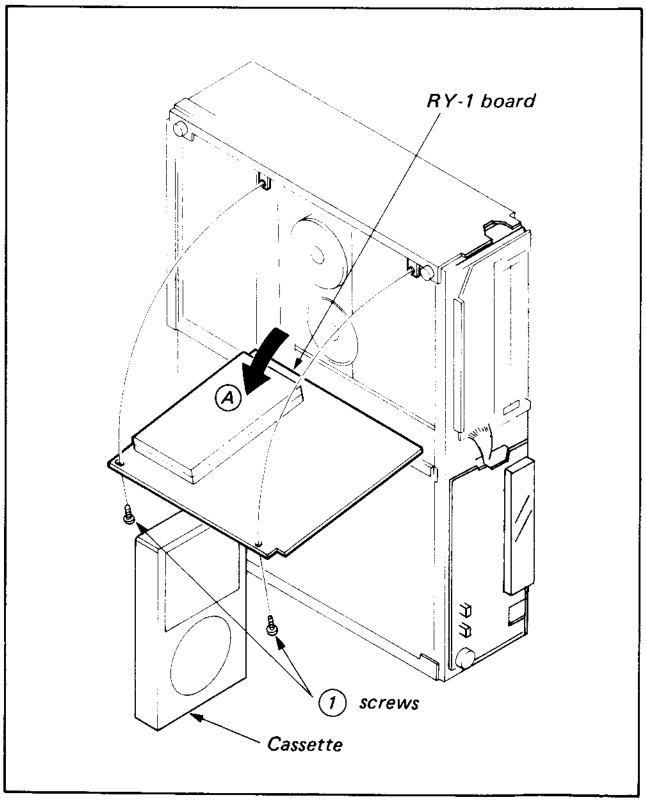
2-7. REMOVAL OF THE YC-25 BOARD

1) Stand the set with the power source side on the bottom.
2) Remove the screw ① and the panel connector ②.
3) Remove the four screws ③, holding the YC-25 board.
4) Swing open the YC-25 board in the direction shown by the arrow Ⓐ and rest it on a cassette.


YC-25 board
② panel connector
Ⓐ
① screw
③ screws
Cassette
③ screws

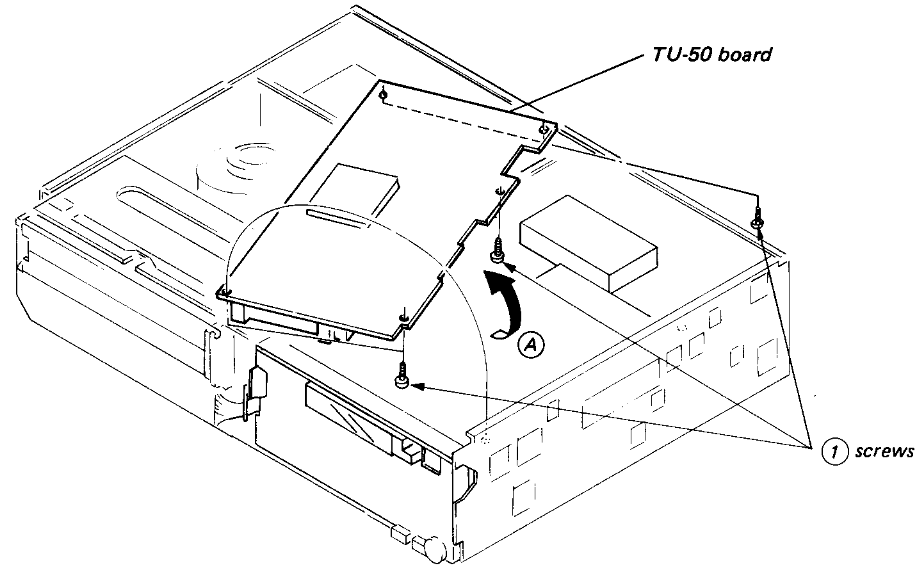
2-8. REMOVAL OF THE RY-1 BOARD

1) Stand the set with the right side panel on the bottom.
2) Remove the two screws ①, holding the RY-1 board.
3) Swing open the RY-1 board in the direction shown by the arrow Ⓐ and rest it on a cassette.


RY-1 board
Ⓐ
① screws
Cassette

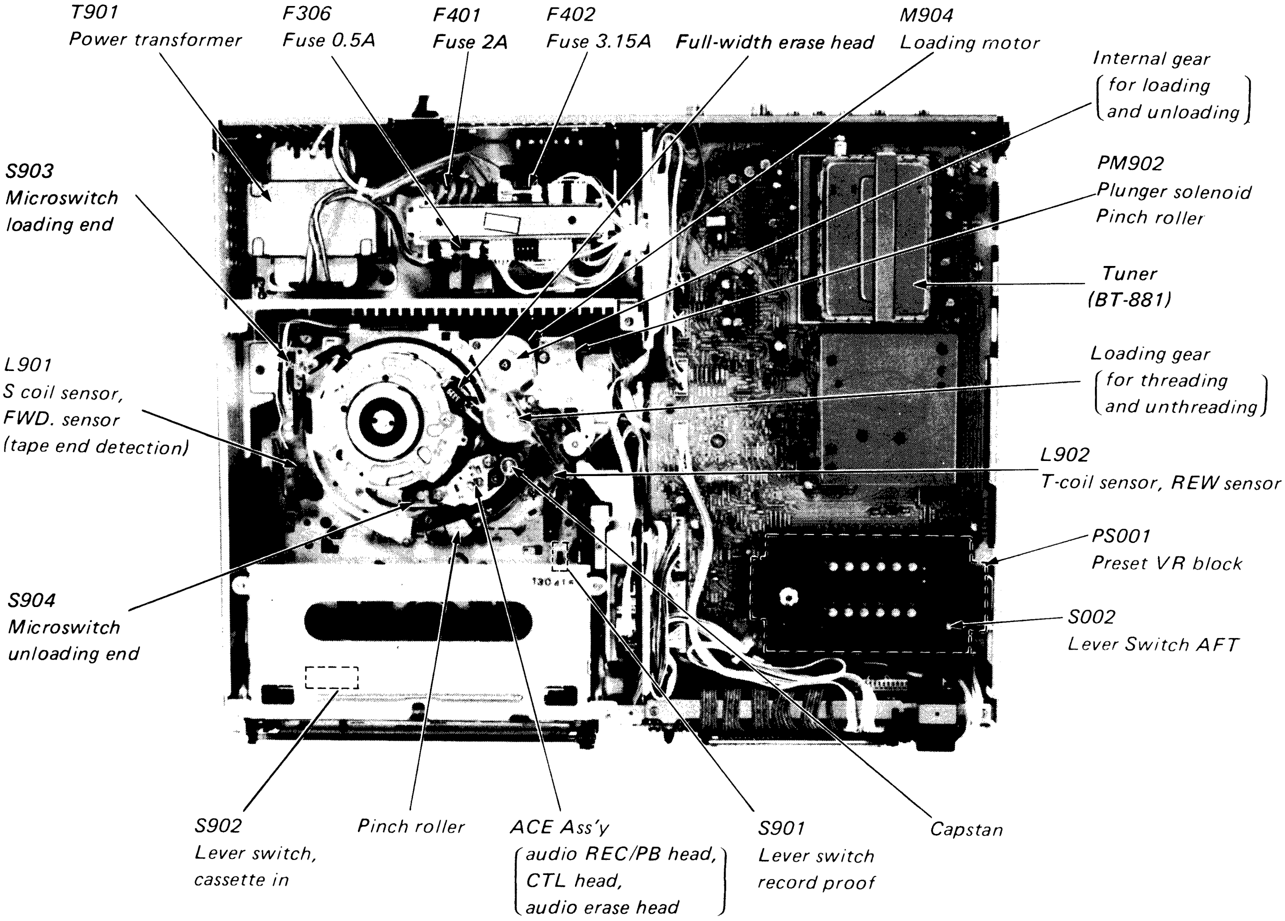
2-9. REMOVAL OF THE TU-50 BOARD

1) Remove the five screws ① holding the TU-50 board.
2) Remove the TU-50 board in the direction shown by the arrow Ⓐ.

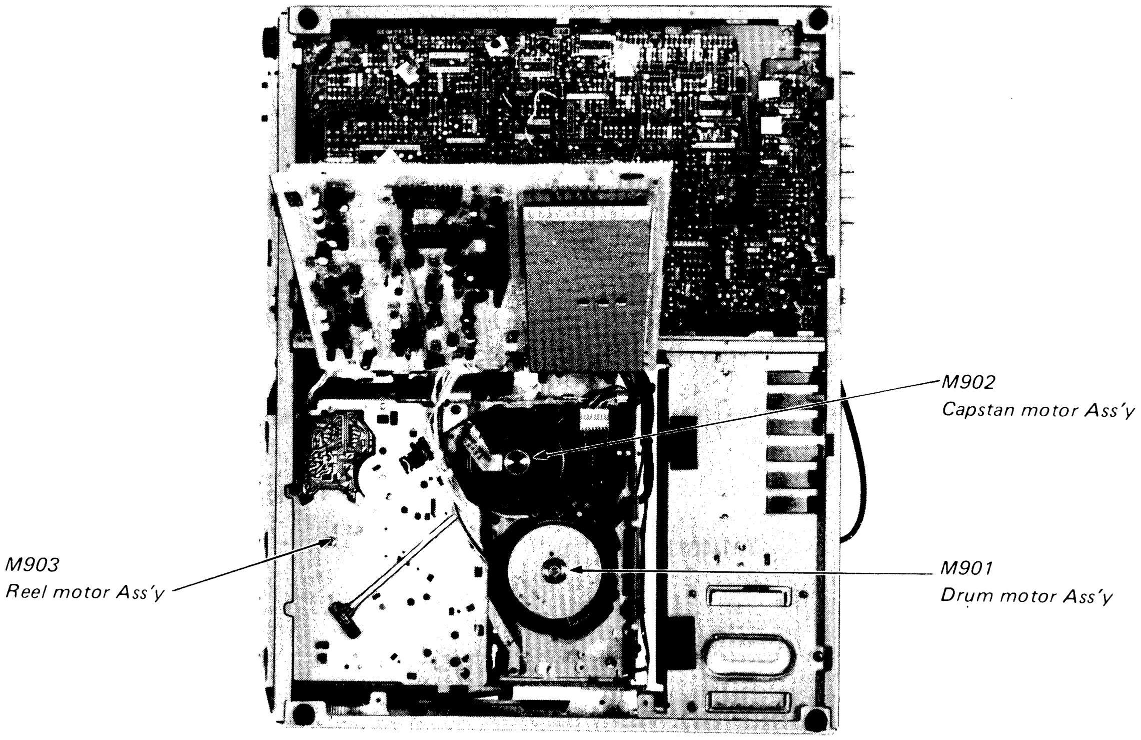

TU-50 board
Ⓐ
① screws

2-10. INTERNAL VIEWS

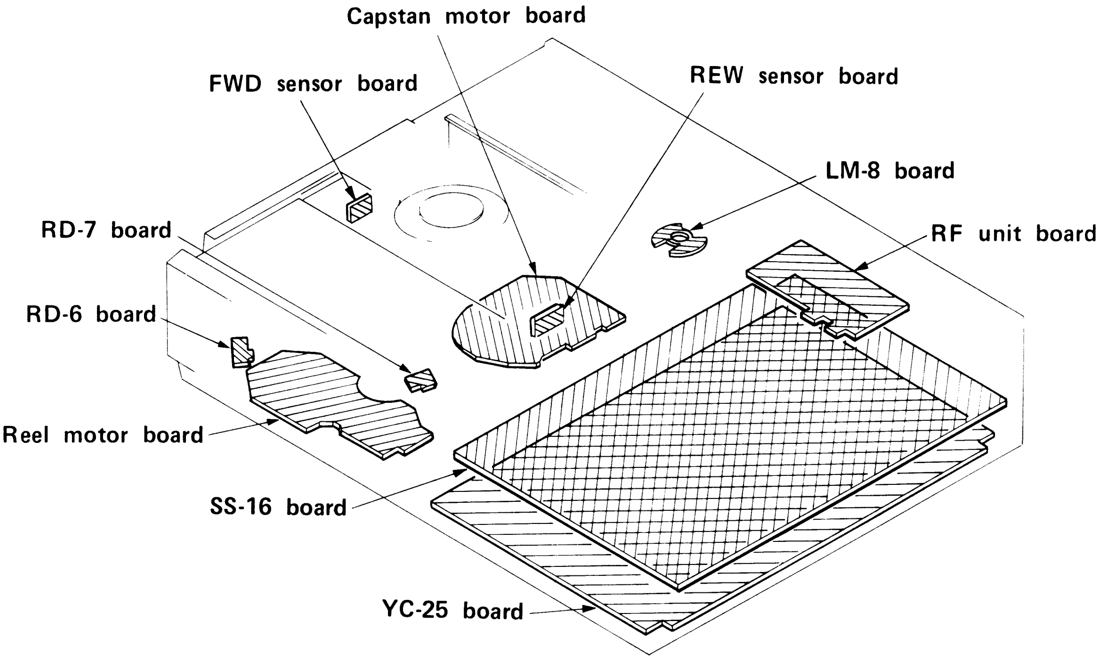
— Top side —

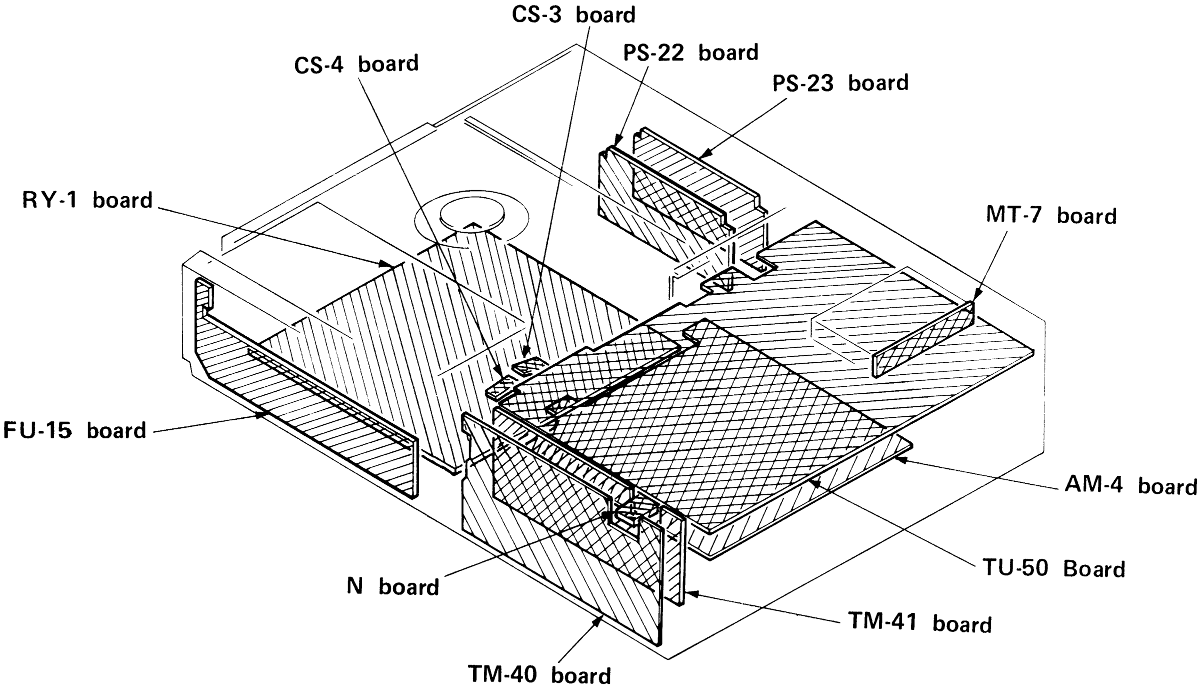

T901
Power transformer
F306
Fuse 0.5A
F401
Fuse 2A
F402
Fuse 3.15A
Full-width erase head
M904
Loading motor
Internal gear
(for loading and unloading)
S903
Microswitch
loading end
PM902
Plunger solenoid
Pinch roller
Tuner
(BT-881)
L901
S coil sensor,
FWD. sensor
(tape end detection)
Loading gear
(for threading and unthreading)
L902
T-coil sensor, REW sensor
PS001
Preset VR block
S904
Microswitch
unloading end
S002
Lever Switch AFT
S902
Lever switch,
cassette in
Pinch roller
ACE Ass'y
(audio REC/PB head,
CTL head,
audio erase head)
S901
Lever switch
record proof
Capstan

— Bottom side —


M902
Capstan motor Ass'y
M903
Reel motor Ass'y
M901
Drum motor Ass'y

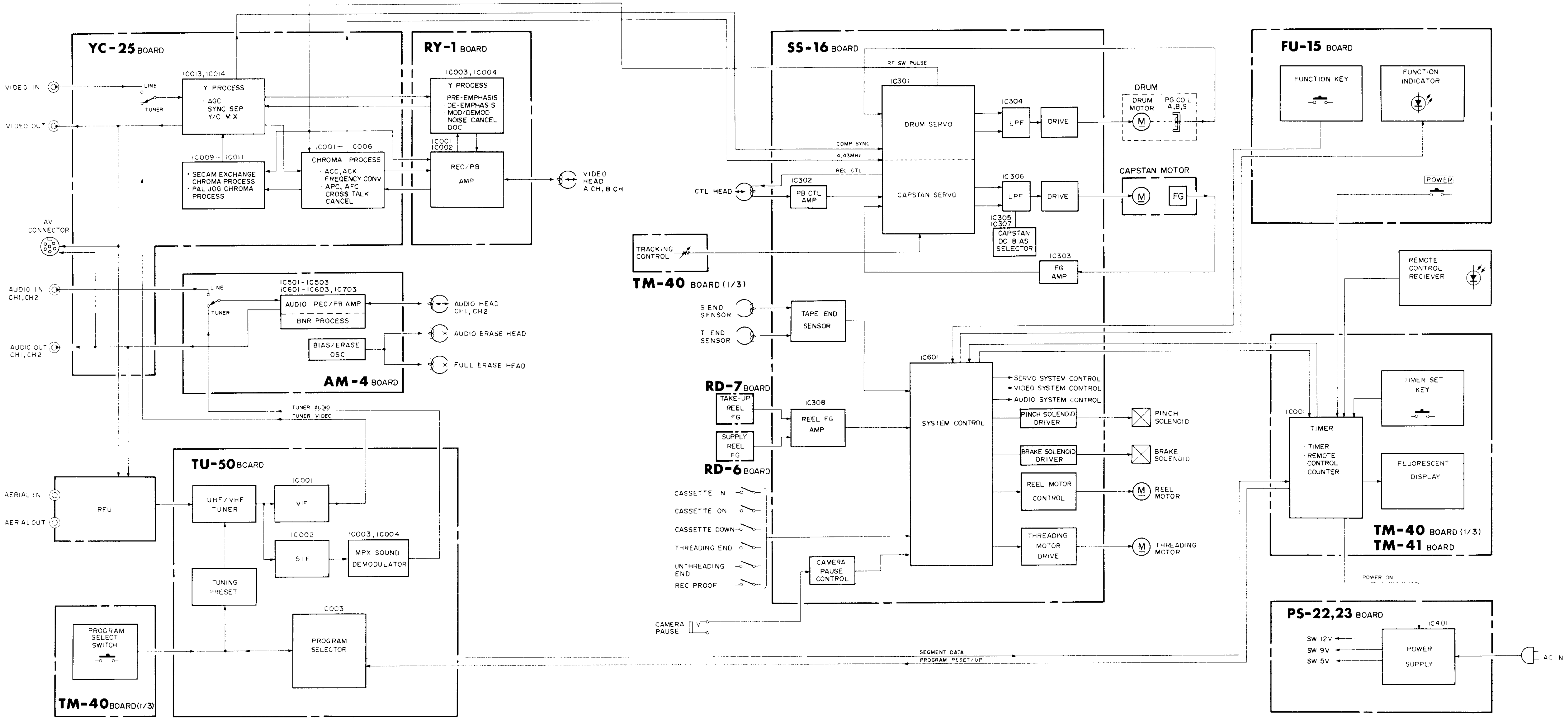
2-11. BOARD ARRANGEMENT


Capstan motor board
FWD sensor board
REW sensor board
LM-8 board
RD-7 board
RF unit board
RD-6 board
Reel motor board
SS-16 board
YC-25 board

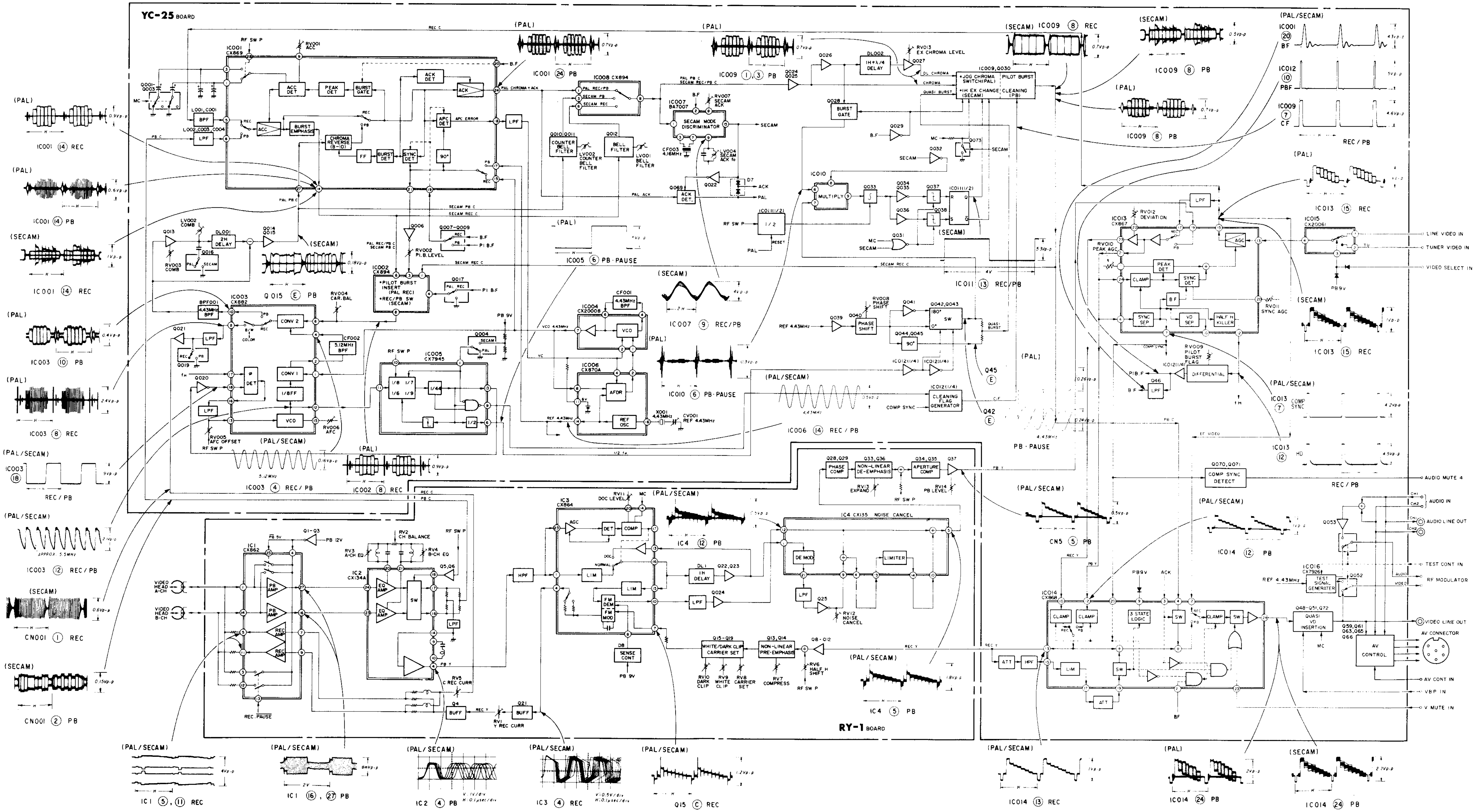

CS-3 board
CS-4 board
PS-22 board
PS-23 board
RY-1 board
MT-7 board
FU-15 board
AM-4 board
TU-50 Board
N board
TM-41 board
TM-40 board

SECTION 3
DIAGRAMS

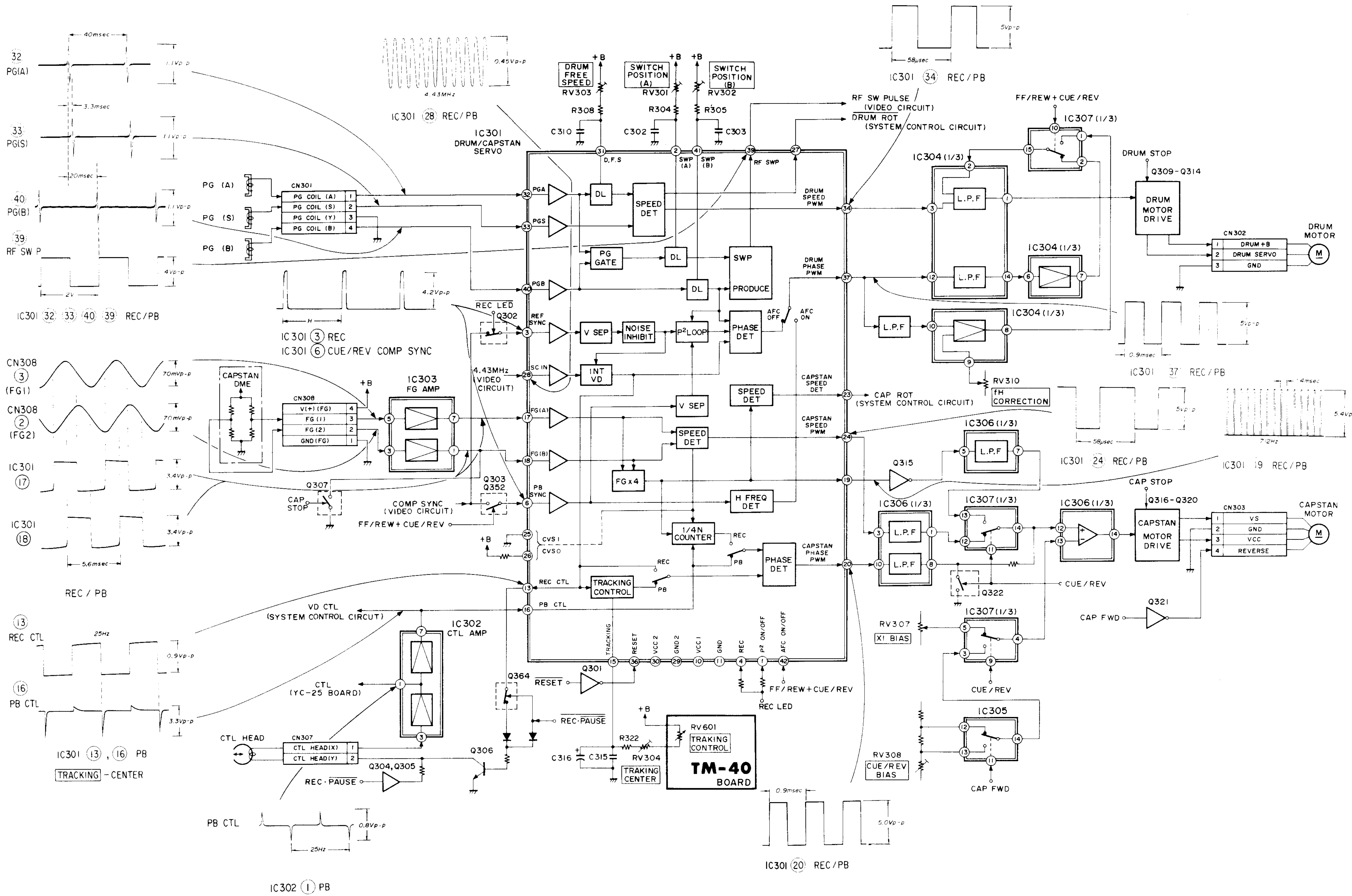
OVERALL BLOCK DIAGRAM


YC-25 BOARD
VIDEO IN
VIDEO OUT
LINE
TUNER
IC013, IC014
Y PROCESS
· AGC
· SYNC SEP
· Y/C MIX
IC009–IC011
· SECAM EXCHANGE CHROMA PROCESS
· PAL JOG CHROMA PROCESS
IC001–IC006
CHROMA PROCESS
· ACC, ACK
· FREQENCY CONV
· APC, AFC
· CROSS TALK CANCEL
AV CONNECTOR
RY-1 BOARD
IC003, IC004
Y PROCESS
PRE-EMPHASIS
DE-EMPHASIS
MOD/DEMOD
NOISE CANCEL
DOC
IC001
IC002
REC/PB AMP
VIDEO HEAD A CH, B CH
AUDIO IN CH1, CH2
AUDIO OUT CH1, CH2
LINE
TUNER
IC501–IC503
IC601–IC603, IC703
AUDIO REC/PB AMP
BNR PROCESS
BIAS/ERASE OSC
AUDIO HEAD CH1, CH2
AUDIO ERASE HEAD
FULL ERASE HEAD
AM-4 BOARD
TUNER AUDIO
TUNER VIDEO
AERIAL IN
AERIAL OUT
RFU
TU-50 BOARD
UHF/VHF TUNER
IC001
VIF
IC002
SIF
IC003, IC004
MPX SOUND DEMODULATOR
TUNING PRESET
IC003
PROGRAM SELECTOR
PROGRAM SELECT SWITCH
TM-40 BOARD (1/3)
SS-16 BOARD
RF SW PULSE
IC301
DRUM SERVO
COMP SYNC
4.43MHz
REC CTL
CAPSTAN SERVO
IC304
LPF
DRIVE
IC306
LPF
DRIVE
IC305
IC307
CAPSTAN DC BIAS SELECTOR
IC303
FG AMP
DRUM
DRUM MOTOR
PG COIL A, B, S
M
CAPSTAN MOTOR
M
FG
CTL HEAD
IC302
PB CTL AMP
TRACKING CONTROL
TM-40 BOARD (1/3)
S END SENSOR
T END SENSOR
TAPE END SENSOR
RD-7 BOARD
TAKE-UP REEL FG
SUPPLY REEL FG
RD-6 BOARD
IC308
REEL FG AMP
IC601
SYSTEM CONTROL
SERVO SYSTEM CONTROL
VIDEO SYSTEM CONTROL
AUDIO SYSTEM CONTROL
PINCH SOLENOID DRIVER
BRAKE SOLENOID DRIVER
REEL MOTOR CONTROL
THREADING MOTOR DRIVE
PINCH SOLENOID
BRAKE SOLENOID
REEL MOTOR
THREADING MOTOR
CASSETTE IN
CASSETTE ON
CASSETTE DOWN
THREADING END
UNTHREADING END
REC PROOF
CAMERA PAUSE CONTROL
CAMERA PAUSE
SEGMENT DATA
PROGRAM RESET/UP
FU-15 BOARD
FUNCTION KEY
FUNCTION INDICATOR
POWER
REMOTE CONTROL RECIEVER
IC001
TIMER
· TIMER
· REMOTE CONTROL
· COUNTER
TIMER SET KEY
FLUORESCENT DISPLAY
TM-40 BOARD (1/3)
TM-41 BOARD
POWER ON
PS-22, 23 BOARD
IC401
SW 12V
SW 9V
SW 5V
POWER SUPPLY
AC IN

VIDEO BLOCK DIAGRAM

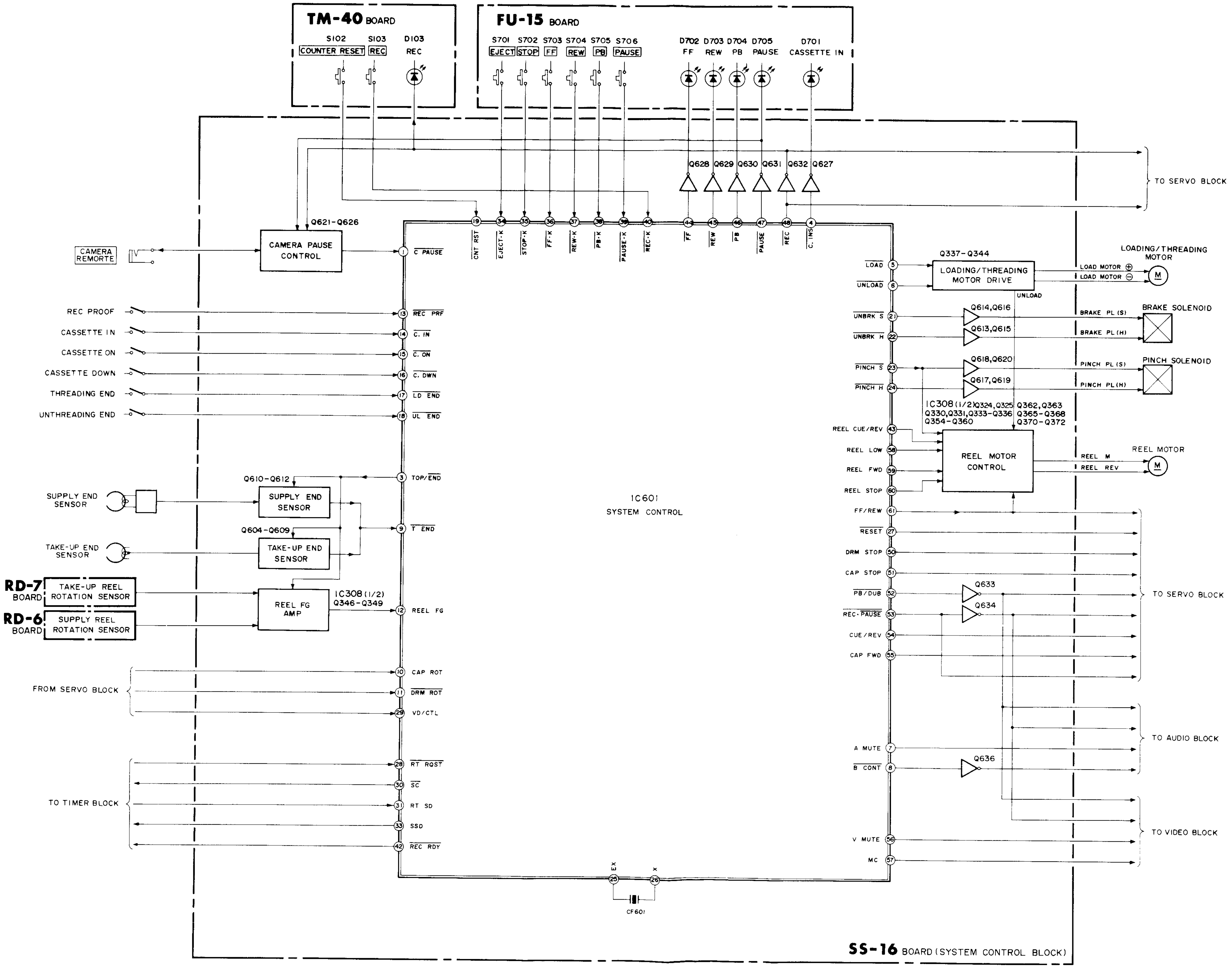

YC-25 BOARD
RY-1 BOARD
IC001 CX869
IC002 CX894
IC003 CX882
IC004 CX20008
IC005 CX7945
IC006 CX870A
IC007 BA7007
IC008 CX894
IC009,Q030
IC010
IC011(1/2)
IC013 CX867
IC014 CX868
IC015 CX20061
IC016 CX7926
IC1 CX862
IC2 CX134A
IC3 CX864
IC4 CX135 NOISE CANCEL
ACC DET
PEAK DET
BURST GATE
ACK DET
ACK
APC DET
BURST EMPHASIS
CHROMA REVERSE (B-ID)
SYNC DET
90°
LPF
BPF
2H DELAY
1H+1/4 DELAY
SECAM MODE DISCRIMINATOR
COUNTER BELL FILTER
BELL FILTER
MULTIPLY
PHASE SHIFT
CONV 2
CONV 1
VCO
AFDR
REF OSC
CLEANING FLAG GENERATOR
PHASE COMP
NON-LINEAR DE-EMPHASIS
APERTURE COMP
AGC
DET
COMP
LIM
FM DEM
FM MOD
1H DELAY
DE MOD
LIMITER
WHITE/DARK CLIP CARRIER SET
NON-LINEAR PRE-EMPHASIS
SENSE CONT
HPF
PB AMP
REC AMP
EQ AMP
SW
BUFF
CLAMP
SYNC SEP
VD SEP
HALF H KILLER
DIFFERENTIAL
3 STATE LOGIC
ATT
COMP SYNC DETECT
TEST SIGNAL GENERATOR
QUASI VD INSERTION
AV CONTROL
VIDEO HEAD A-CH
VIDEO HEAD B-CH
LINE VIDEO IN
TUNER VIDEO IN
VIDEO SELECT IN
AUDIO MUTE 4
AUDIO IN
AUDIO LINE OUT
TEST CONT IN
RF MODULATOR
VIDEO LINE OUT
AV CONNECTOR
AV CONT IN
VBP IN
V MUTE IN
IC001 ⑭ REC
IC001 ⑭ PB
IC003 ⑩ PB
IC003 ⑧ REC
IC003 ⑱ REC / PB
IC003 ⑫ REC / PB
CN001 ① REC
CN001 ② PB
IC001 ㉔ PB
IC009 ①,③ PB
IC009 ⑧ REC
IC009 ⑧ PB
IC005 ⑥ PB · PAUSE
IC007 ⑨ REC/PB
IC010 ⑥ PB · PAUSE
IC006 ⑭ REC / PB
IC003 ④ REC / PB
IC002 ⑧ REC
IC011 ⑬ REC/PB
IC013 ⑮ REC
IC013 ⑦ COMP SYNC
IC013 ⑫ HD
CN5 ⑤ PB
IC014 ⑫ PB
IC4 ⑫ PB
IC4 ⑤ PB
IC1 ⑤,⑪ REC
IC1 ⑯, ㉗ PB
IC2 ④ PB
IC3 ④ REC
Q15 Ⓒ REC
IC014 ⑬ REC
IC014 ㉔ PB

SERVO BLOCK DIAGRAM



32 PG(A)
33 PG(S)
40 PG(B)
39 RF SW P
40msec
3.3msec
20msec
2V
1.1Vp-p
4Vp-p
IC301 32 33 40 39 REC/PB
4.43MHz
0.45Vp-p
IC301 28 REC/PB
IC301 DRUM/CAPSTAN SERVO
PG (A)
PG (S)
PG (B)
CN301
PG COIL (A) 1
PG COIL (S) 2
PG COIL (Y) 3
PG COIL (B) 4
4.2Vp-p
H
IC301 3 REC
IC301 6 CUE/REV COMP SYNC
CN308 3 (FG1)
CN308 2 (FG2)
70mVp-p
IC301 17
IC301 18
3.4Vp-p
5.6msec
REC / PB
CAPSTAN DME
CN308
V(+)(FG) 4
FG (1) 3
FG (2) 2
GND (FG) 1
IC303 FG AMP
+B
Q307
CAP STOP
Q303 Q352
COMP SYNC (VIDEO CIRCUIT)
FF/REW+CUE/REV
REC LED
Q302
4.43MHz (VIDEO CIRCUIT)
DRUM FREE SPEED
RV303
R308
C310
SWITCH POSITION (A)
RV301
R304
C302
SWITCH POSITION (B)
RV302
R305
C303
D.F.S
SWP (A)
SWP (B)
RF SWP
PGA
PGS
PGB
REF SYNC
SC IN
FG(A)
FG(B)
PB SYNC
CVS I
CVS O
REC CTL
PB CTL
DL
SPEED DET
PG GATE
SWP PRODUCE
V SEP
NOISE INHIBIT
P²LOOP
PHASE DET
AFC OFF
AFC ON
INT VD
V SEP
SPEED DET
FG x 4
H FREQ DET
1/4N COUNTER
REC
PB
TRACKING CONTROL
PHASE DET
DRUM SPEED PWM
DRUM PHASE PWM
CAPSTAN SPEED DET
CAPSTAN SPEED PWM
CAPSTAN PHASE PWM
TRACKING
RESET
VCC 2
GND 2
VCC 1
GND
REC
P² ON/OFF
AFC ON/OFF
RF SW PULSE (VIDEO CIRCUIT)
DRUM ROT (SYSTEM CONTROL CIRCUIT)
CAP ROT (SYSTEM CONTROL CIRCUIT)
5Vp-p
58μsec
IC301 34 REC/PB
FF/REW+CUE/REV
IC307 (1/3)
IC304 (1/3)
L.P.F
DRUM STOP
Q309-Q314
DRUM MOTOR DRIVE
CN302
1 DRUM +B
2 DRUM SERVO
3 GND
DRUM MOTOR
M
RV310
fH CORRECTION
0.9msec
IC301 37 REC/PB
IC301 24 REC/PB
5.4Vp-p
7.2Hz
IC301 19 REC/PB
IC306 (1/3)
Q315
CAP STOP
Q316-Q320
CAPSTAN MOTOR DRIVE
CN303
1 VS
2 GND
3 VCC
4 REVERSE
CAPSTAN MOTOR
Q322
CUE/REV
Q321
CAP FWD
RV307
X1 BIAS
IC305
RV308
CUE/REV BIAS
13 REC CTL
16 PB CTL
25Hz
0.9Vp-p
3.3Vp-p
IC301 13, 16 PB
TRACKING - CENTER
VD CTL (SYSTEM CONTROL CIRCUT)
IC302 CTL AMP
CTL (YC-25 BOARD)
CTL HEAD
CN307
CTL HEAD(X) 1
CTL HEAD(Y) 2
Q304,Q305
REC·PAUSE
Q306
Q364
RESET
Q301
REC·PAUSE
+B
R322
C316
C315
RV304
TRAKING CENTER
RV601
TRAKING CONTROL
TM-40 BOARD
FF/REW+CUE/REV
REC LED
PB CTL
0.8Vp-p
25Hz
IC302 1 PB
5.0Vp-p
IC301 20 REC/PB

SYSTEM CONTROL BLOCK DIAGRAM



TM-40 BOARD
S102 COUNTER RESET
S103 REC
D103 REC
FU-15 BOARD
S701 EJECT
S702 STOP
S703 FF
S704 REW
S705 PB
S706 PAUSE
D702 FF
D703 REW
D704 PB
D705 PAUSE
D701 CASSETTE IN
Q628 Q629 Q630 Q631 Q632 Q627
TO SERVO BLOCK
Q621-Q626
CAMERA REMORTE
CAMERA PAUSE CONTROL
C PAUSE
CNT RST
EJECT-K
STOP-K
FF-K
REW-K
PB-K
PAUSE-K
REC-K
FF
REW
PB
PAUSE
REC
C. INS
REC PROOF
CASSETTE IN
CASSETTE ON
CASSETTE DOWN
THREADING END
UNTHREADING END
REC PRF
C. IN
C. ON
C. DWN
LD END
UL END
Q610-Q612
SUPPLY END SENSOR
SUPPLY END SENSOR
Q604-Q609
TAKE-UP END SENSOR
TAKE-UP END SENSOR
TOP/END
T END
RD-7 BOARD
TAKE-UP REEL ROTATION SENSOR
RD-6 BOARD
SUPPLY REEL ROTATION SENSOR
REEL FG AMP
IC308 (1/2) Q346-Q349
REEL FG
FROM SERVO BLOCK
CAP ROT
DRM ROT
VD/CTL
TO TIMER BLOCK
RT RQST
SC
RT SD
SSD
REC RDY
IC601 SYSTEM CONTROL
EX
X
CF601
LOAD
UNLOAD
Q337-Q344
LOADING/THREADING MOTOR DRIVE
UNLOAD
LOAD MOTOR ⊕
LOAD MOTOR ⊖
LOADING/THREADING MOTOR
M
UNBRK S
UNBRK H
Q614,Q616
Q613,Q615
BRAKE PL (S)
BRAKE PL (H)
BRAKE SOLENOID
PINCH S
PINCH H
Q618,Q620
Q617,Q619
PINCH PL (S)
PINCH PL (H)
PINCH SOLENOID
IC308 (1/2) Q324,Q325 Q330,Q331,Q333-Q336 Q354-Q360
Q362,Q363 Q365-Q368 Q370-Q372
REEL CUE/REV
REEL LOW
REEL FWD
REEL STOP
REEL MOTOR CONTROL
REEL M
REEL REV
REEL MOTOR
FF/REW
RESET
DRM STOP
CAP STOP
PB/DUB
REC·PAUSE
CUE/REV
CAP FWD
Q633
Q634
TO SERVO BLOCK
A MUTE
B CONT
Q636
TO AUDIO BLOCK
TO VIDEO BLOCK
V MUTE
MC
SS-16 BOARD (SYSTEM CONTROL BLOCK)

SYSTEM CONTROL CIRCUIT AND MECHANISM BLOCK INTERFACE

MODE SIGNAL	I/O	Pin No.	EJECTED	LOADING	THREADING	STOP	UN-THREADING	UN-LOADING	FF	REW	PB	PB·PAUSE	PICTURE SEARCH		REC	REC·PAUSE	TIMER REC	FR SEARCH	
													CUE	REV				CUE	REV
$\overline{\text{REC PROOF}}$	I	IC601 13pin	H	H	H/L	H/L	H/L	H	H/L	H/L	H/L	H/L	H/L	H/L	L	L	L	H/L	H/L
$\overline{\text{C·IN}}$	I	IC601 14pin	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
$\overline{\text{C·ON}}$	I	IC601 15pin	H	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
$\overline{\text{C·DWN}}$	I	IC601 16pin	H	H	L	L	L	H	L	L	L	L	L	L	L	L	L	L	L
$\overline{\text{LD END}}$	I	IC601 17pin	H	H	H	L	H	H	L	L	L	L	L	L	L	L	L	L	L
$\overline{\text{UL END}}$	I	IC601 18pin	L	L	H	H	H	L	H	H	H	H	H	H	H	H	H	H	H
$\overline{\text{UNBRK S}}$	O	IC601 21pin	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
$\overline{\text{UNBRK H}}$	O	IC601 22pin	H	H	L	H	L	H	L	L	L	H	L	L	L	H	L	L	L
$\overline{\text{PINCH S}}$	O	IC601 23pin	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
$\overline{\text{PINCH H}}$	O	IC601 24pin	H	L	H	H	H	L	H	H	L	H	L	L	L	H	L	H	H
$\overline{\text{LOAD}}$	O	IC601 5pin	H	L	L	H	H	H	H	H	H	H	H	H	H	H	H	H	H
$\overline{\text{UNLOAD}}$	O	IC601 6pin	H	H	H	H	L	L	H	H	H	H	H	H	H	H	H	H	H

SYSTEM CONTROL CIRCUIT AND REMOTE CONTROL/TIMER CIRCUIT INTERFACE

MODE SIGNAL	I/O	Pin No.	STOP	FF	REW	PB	PB·PAUSE	PICTURE SEARCH		REC	REC·PAUSE	TIMER REC	FR SEARCH	
								CUE	REV				CUE	REV
$\overline{\text{RT RQST}}$	I	IC601 28pin												
RTSD	I	IC601 31pin												
$\overline{\text{COUNTER RESET}}$	I	IC601 19pin												
SSD	O	IC601 33pin												
$\overline{\text{SC}}$	O	IC601 30pin												
$\overline{\text{REC READY}}$	O	IC601 42pin	H/L	H	H	H	H	H	H	H	H	L	H	H

SYSTEM CONTROL CIRCUIT AND FUNCTION BLOCK INTE

MODE SIGNAL	I/O	Pin No.	STOP	FF	REW
$\overline{\text{EJECT·K}}$	I	IC601 34pin	H	H	H
$\overline{\text{STOP·K}}$	I	IC601 35pin	H	H	H
$\overline{\text{FF·K}}$	I	IC601 36pin	H	H	H
$\overline{\text{REW·K}}$	I	IC601 37pin	H	H	H
$\overline{\text{PB·K}}$	I	IC601 38pin	H	H	H
$\overline{\text{PAUSE·K}}$	I	IC601 39pin	H	H	H
$\overline{\text{REC·K}}$	I	IC601 40pin	H	H	H
$\overline{\text{FF}}$	O	IC601 44pin	H	L	H
$\overline{\text{REW}}$	O	IC601 45pin	H	H	L
$\overline{\text{PB}}$	O	IC601 46pin	H	H	H
$\overline{\text{PAUSE}}$	O	IC601 47pin	H	H	H
$\overline{\text{REC}}$	O	IC601 48pin	H	H	H
$\overline{\text{C·IN}}$	O	IC601 4pin	L	L	L

SYSTEM CONTROL CIRCUIT AND ITS PERIPHERAL CIRCUI

MODE SIGNAL	I/O	Pin No.	STOP	FF	REW
TEND*1	I	IC601 9pin	H	H	H
C·PAUSE*2	I	IC601 1pin	H	H	H
TOP/END	O	IC601 3pin	L	L	H

*1 "L" at tape end.

*2 Camera pause signal.

PB	PB·PAUSE	PICTURE SEARCH		REC	REC·PAUSE	TIMER REC	FR SEARCH	
		CUE	REV				CUE	REV
H/L	H/L	H/L	H/L	L	L	L	H/L	H/L
L	L	L	L	L	L	L	L	L
L	L	L	L	L	L	L	L	L
L	L	L	L	L	L	L	L	L
L	L	L	L	L	L	L	L	L
H	H	H	H	H	H	H	H	H
H	H	H	H	H	H	H	H	H
L	H	L	L	L	H	L	L	L
H	H	H	H	H	H	H	H	H
L	H	L	L	L	H	L	H	H
H	H	H	H	H	H	H	H	H
H	H	H	H	H	H	H	H	H

REC·PAUSE	TIMER REC	FR SEARCH	
		CUE	REV
H	L	H	H

SYSTEM CONTROL CIRCUIT AND FUNCTION BLOCK INTERFACE

MODE			STOP	FF	REW	PB	PB·PAUSE	PICTURE SEARCH		REC	REC·PAUSE	TIMER REC	FR SEARCH	
SIGNAL	I/O	Pin No.						CUE	REV				CUE	REV
$\overline{\text{EJECT·K}}$	I	IC601 34pin	H	H	H	H	H	H	H	H	H	H	H	H
$\overline{\text{STOP·K}}$	I	IC601 35pin	H	H	H	H	H	H	H	H	H	H	H	H
$\overline{\text{FF·K}}$	I	IC601 36pin	H	H	H	H	H	L	H	H	H	H	L	H
$\overline{\text{REW·K}}$	I	IC601 37pin	H	H	H	H	H	H	L	H	H	H	H	L
$\overline{\text{PB·K}}$	I	IC601 38pin	H	H	H	H	H	H	H	H	H	H	H	H
$\overline{\text{PAUSE·K}}$	I	IC601 39pin	H	H	H	H	H	H	H	H	H	H	H	H
$\overline{\text{REC·K}}$	I	IC601 40pin	H	H	H	H	H	H	H	H	H	H	H	H
$\overline{\text{FF}}$	O	IC601 44pin	H	L	H	H	H	L	H	H	H	H	L	H
$\overline{\text{REW}}$	O	IC601 45pin	H	H	L	H	H	H	L	H	H	H	H	L
$\overline{\text{PB}}$	O	IC601 46pin	H	H	H	L	L	L	L	H	H	H	L	L
$\overline{\text{PAUSE}}$	O	IC601 47pin	H	H	H	H	L	H	H	H	L	H	H	H
$\overline{\text{REC}}$	O	IC601 48pin	H	H	H	H	H	H	H	L	L	L	H	H
$\overline{\text{C·IN}}$	O	IC601 4pin	L	L	L	L	L	L	L	L	L	L	L	L

SYSTEM CONTROL CIRCUIT AND ITS PERIPHERAL CIRCUIT INTERFACE

MODE			STOP	FF	REW	PB	PB·PAUSE	PICTURE SEARCH		REC	REC·PAUSE	TIMER REC	FR SEARCH	
SIGNAL	I/O	Pin No.						CUE	REV				CUE	REV
TEND*[1]	I	IC601 9pin	H	H	H	H	H	H	H	H	H	H	H	H
C·PAUSE*[2]	I	IC601 1pin	H	H	H	H	H	H	H	H	H	H	H	H
TOP/END	O	IC601 3pin	L	L	H	L	L	L	H	L	L	L	L	H

*1 "L" at tape end.

*2 Camera pause signal.

SYSTEM CONTROL CIRCUIT AND REEL MOTOR CONTROL CIRCUIT INTERFACE

SIGNAL \ MODE	I/O	Pin No.	EJECTED	LOADING	THREADING	STOP	UN-THREADING	UN-LOADING	FF	REW	PB	PB·PAUSE	PICTURE SEARCH		REC	REC·PAUSE	TIMER REC	FR SEARCH	
													CUE	REV				CUE	REV
REEL FG	I	IC601 12pin																	
REEL LOW	O	IC601 58pin	L	L	H	L	H	L	L	L	H	H	L	L	H	H	H	H	H
REEL FWD	O	IC601 59pin	H	H	H	H	L	H	H	L	H	H	H	L	H	H	H	H	L
REEL STOP	O	IC601 60pin	H	H	L	H	L	H	L	L	L	H	L	L	L	H	L	L	L
FF/REW	O	IC601 61pin	L	L	L	L	L	L	H	H	L	L	L	L	L	L	L	H	H
REEL CUE/REV	O	IC601 43pin	L	L	L	L	L	L	L	L	L	L	H	H	L	L	L	L	L
$\overline{\text{PINCH S}}$	O	IC601 23pin	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
TOP/$\overline{\text{END}}$	O	IC601 3pin	L	L	L	L	L	L	L	H	L	L	L	H	L	L	L	L	H
$\overline{\text{UNLOAD}}$	O	IC601 6pin	H	H	H	H	L	L	H	H	H	H	H	H	H	H	H	H	H

SYSTEM CONTROL CIRCUIT AND VIDEO CIRCUIT INTERFACE

SIGNAL \ MODE	I/O	Pin No.	STOP (E-E)	FF	REW	PB	PB·PAUSE	PICTURE SEARCH		REC	REC·PAUSE	TIMER REC	FR SEARCH	
								CUE	REV				CUE	REV
V MUTE	O	IC601 56pin	L	L	L	L	L	L	L	L	L	L	L	L
MC	O	IC601 57pin	L	L	L	L	H	H	H	L	L	L	H	H
$\overline{\text{REC·PAUSE}}$	O	IC601 53pin	H	H	H	H	H	H	H	L	H	L	H	H
$\overline{\text{PB + DUB}}$	O	IC601 52pin	H	H	H	L	L	L	L	H	H	H	L	L

SYSTEM CONTROL CIRCUIT AND SERVO CIRCUIT

SIGNAL \ MODE	I/O	Pin No.	STOP	FF
$\overline{\text{DRUM ROT}}$	I	IC601 11pin	H	L
CAP ROT	I	IC601 10pin	L	L
VD/CTL	I	IC601 29pin		CTL
DRUM STOP	O	IC601 50pin	H	L
CAP STOP	O	IC601 51pin	H	H
$\overline{\text{PB + DUB}}$	O	IC601 52pin	H	H
$\overline{\text{REC·PAUSE}}$	O	IC601 53pin	H	H
CUE/REV	O	IC601 54pin	L	L
CAP FWD	O	IC601 55pin	H	H
$\overline{\text{194 RESET}}$*1	O	IC601 27pin	H	H

*1 Reset signal for CX194.

SYSTEM CONTROL CIRCUIT AND AUDIO CIRCUIT

SIGNAL \ MODE	I/O	Pin No.	STOP (E-E)	FF
A MUTE	O	IC601 7pin	L	L
B CONT	O	IC601 8pin	H	H
$\overline{\text{REC·PAUSE}}$	O	IC601 53pin	H	H
$\overline{\text{PB + DUB}}$	O	IC601 52pin	H	H

PB	PB· PAUSE	PICTURE SEARCH		REC	REC· PAUSE	TIMER REC	FR SEARCH	
		CUE	REV				CUE	REV
H	H	L	L	H	H	H	H	H
H	H	H	L	H	H	H	H	L
L	H	L	L	L	H	L	L	L
L	L	L	L	L	L	L	H	H
L	L	H	H	L	L	L	L	L
H	H	H	H	H	H	H	H	H
L	L	L	H	L	L	L	L	H
H	H	H	H	H	H	H	H	H

REC· AUSE	TIMER REC	FR SEARCH	
		CUE	REV
L	L	L	L
L	L	H	H
H	L	H	H
H	H	L	L

SYSTEM CONTROL CIRCUIT AND SERVO CIRCUIT INTERFACE

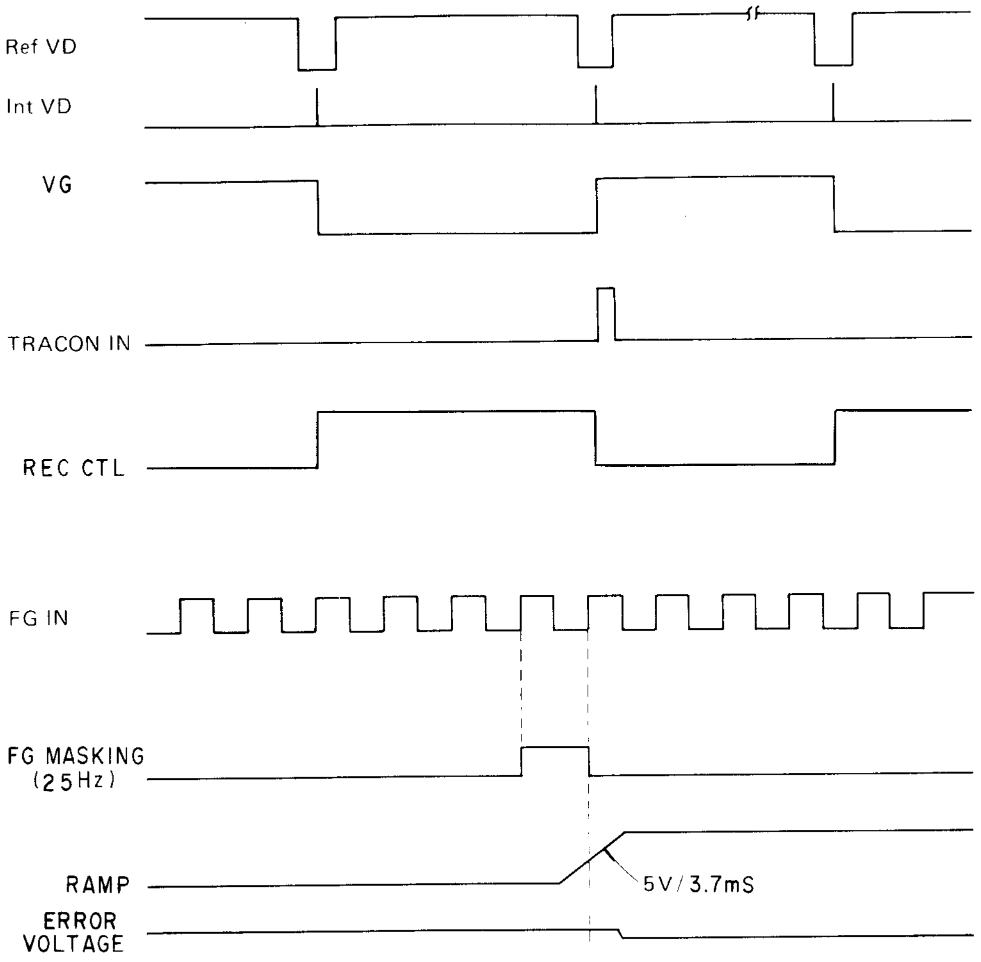
SIGNAL \ MODE	I/O	Pin No.	STOP	FF	REW	PB	PB· PAUSE	PICTURE SEARCH		REC	REC· PAUSE	TIMER REC	FR SEARCH	
								CUE	REV				CUE	REV
$\overline{\text{DRUM ROT}}$	I	IC601 11pin	H	L	L	L	L	L	L	L	L	L	L	L
CAP ROT	I	IC601 10pin	L	L	L	H	H	H	H	H	H	H	L	L
VD/CTL	I	IC601 29pin		CTL	CTL	CTL		CTL	CTL	VD		VD	CTL	CTL
DRUM STOP	O	IC601 50pin	H	L	L	L	L	L	L	L	L	L	L	L
CAP STOP	O	IC601 51pin	H	H	H	L	L	L	L	L	L	L	H	H
$\overline{\text{PB + DUB}}$	O	IC601 52pin	H	H	H	L	L	L	L	H	H	H	L	L
$\overline{\text{REC·PAUSE}}$	O	IC601 53pin	H	H	H	H	H	H	H	L	H	L	H	H
CUE/REV	O	IC601 54pin	L	L	L	L	L	H	H	L	L	L	L	L
CAP FWD	O	IC601 55pin	H	H	H	H	H	H	L	H	H	H	H	H
$\overline{\text{194 RESET}}$*[1]	O	IC601 27pin	H	H	H	H	H	H	H	H	H	H	H	H

*1 Reset signal for CX194.

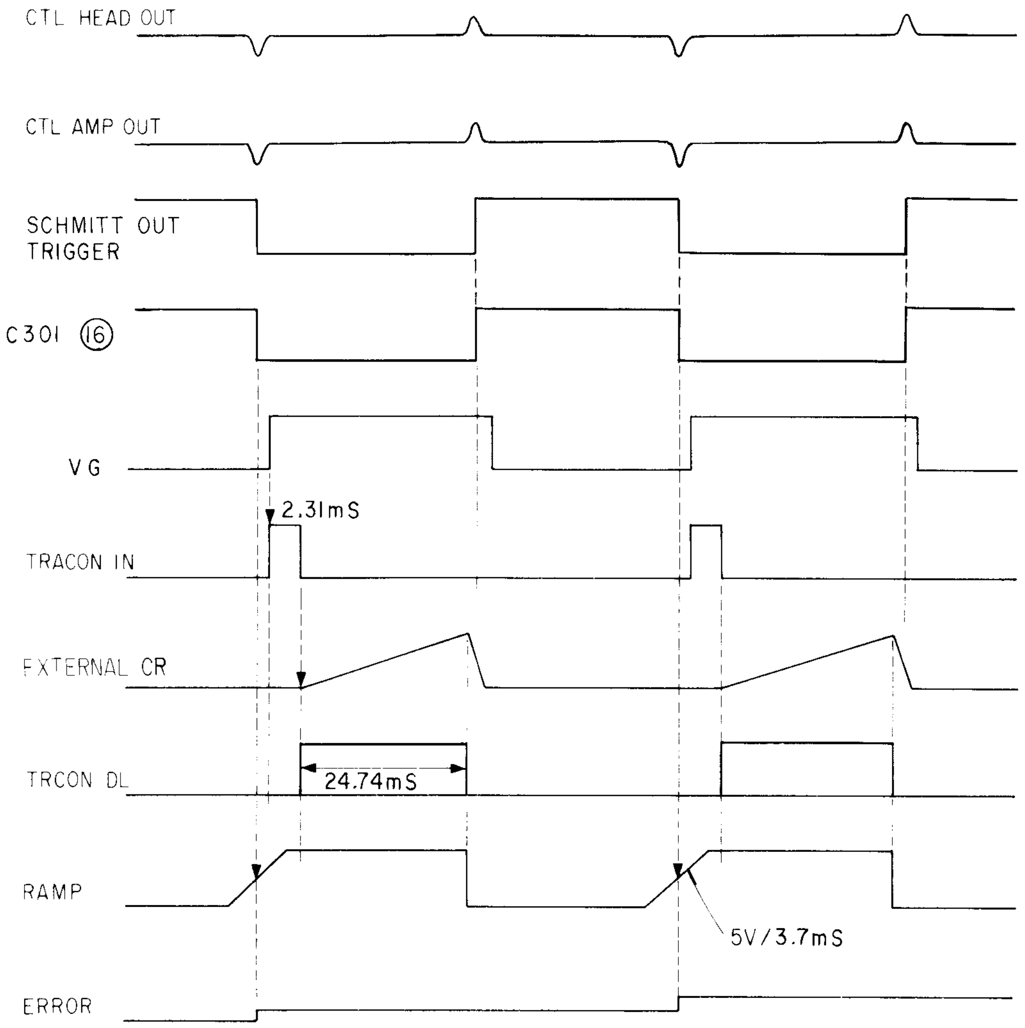
SYSTEM CONTROL CIRCUIT AND AUDIO CIRCUIT INTERFACE

SIGNAL \ MODE	I/O	Pin No.	STOP (E-E)	FF	REW	PB	PB· PAUSE	PICTURE SEARCH		REC	REC· PAUSE	TIMER REC	FR SEARCH	
								CUE	REV				CUE	REV
A MUTE	O	IC601 7pin	L	L	L	L	H	H	H	L	L	L	H	H
B CONT	O	IC601 8pin	H	H	H	H	H	H	H	L	H	L	H	H
$\overline{\text{REC·PAUSE}}$	O	IC601 53pin	H	H	H	H	H	H	H	L	H	L	H	H
$\overline{\text{PB + DUB}}$	O	IC601 52pin	H	H	H	L	L	L	L	H	H	H	L	L

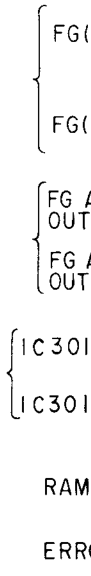
CAPSTAN PHASE SYSTEM TIMING CHART (REC)


Ref VD
Int VD
VG
TRACON IN
REC CTL
FG IN
FG MASKING (25Hz)
RAMP
5V/3.7mS
ERROR VOLTAGE

CAPSTAN PHASE SYSTEM TIMING CHART (PB)


CTL HEAD OUT
CTL AMP OUT
SCHMITT OUT TRIGGER
IC301 ⑯
VG
2.31mS
TRACON IN
EXTERNAL CR
TRCON DL
24.74mS
RAMP
5V/3.7mS
ERROR

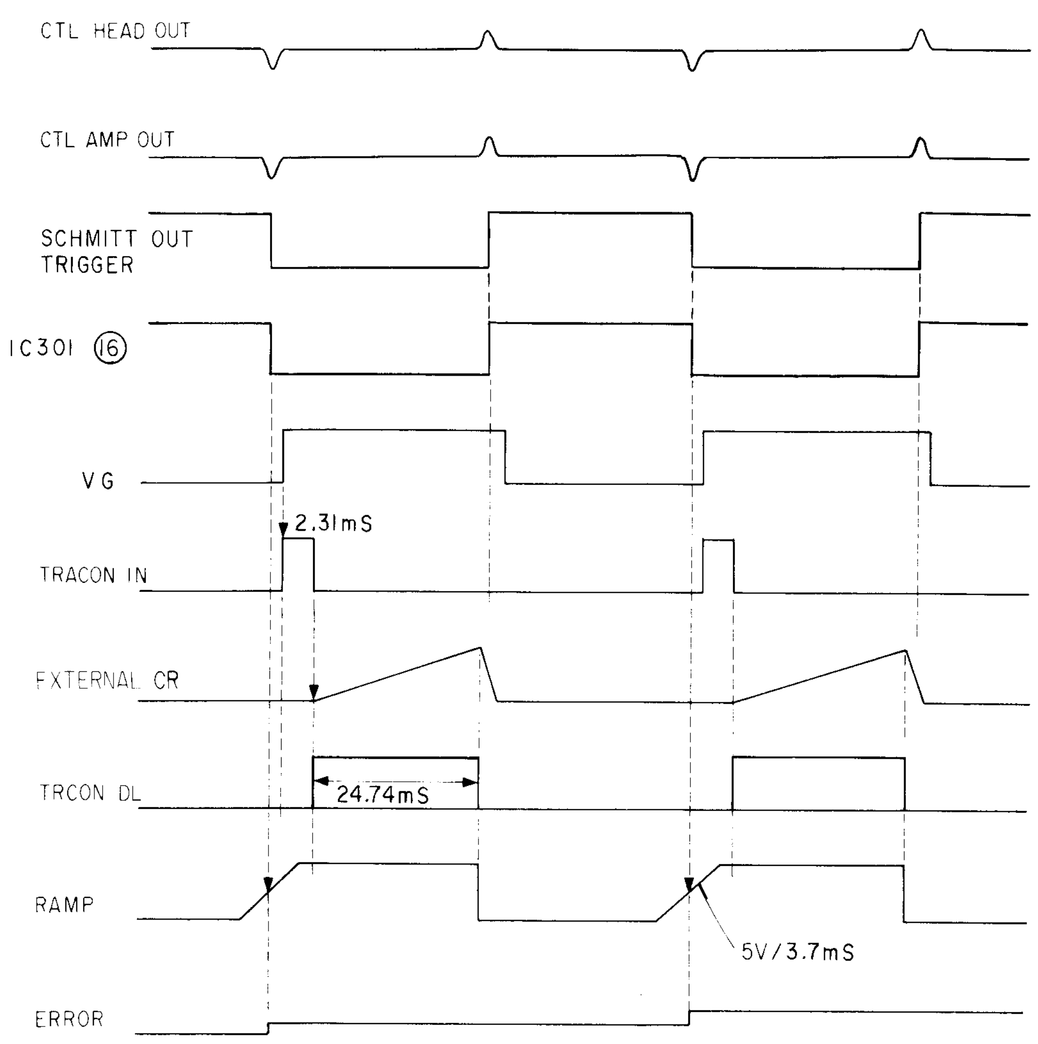
CAPSTA


FG(
FG(
FG
OUT
FG
OUT
IC30I
IC30I
RAM
ERR

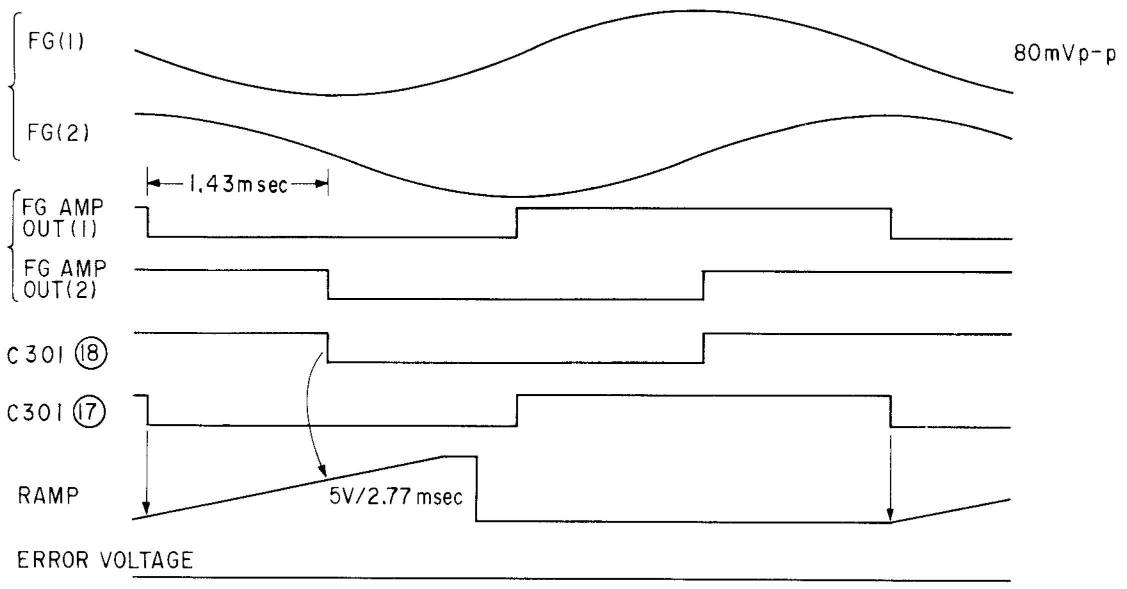
DRUM

PHASE ERR

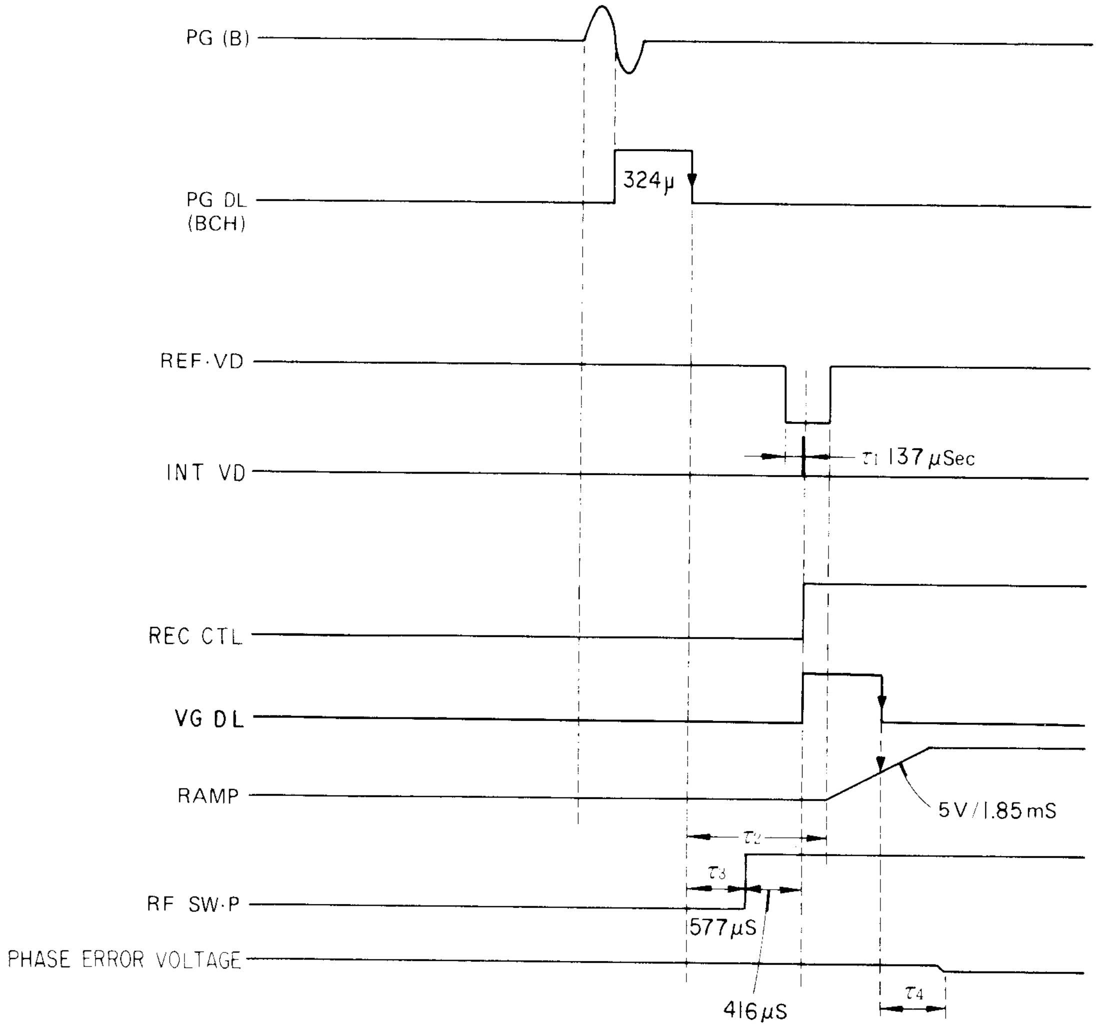
CAPSTAN PHASE SYSTEM TIMING CHART (PB)



CAPSTAN SPEED SYSTEM TIMING CHART

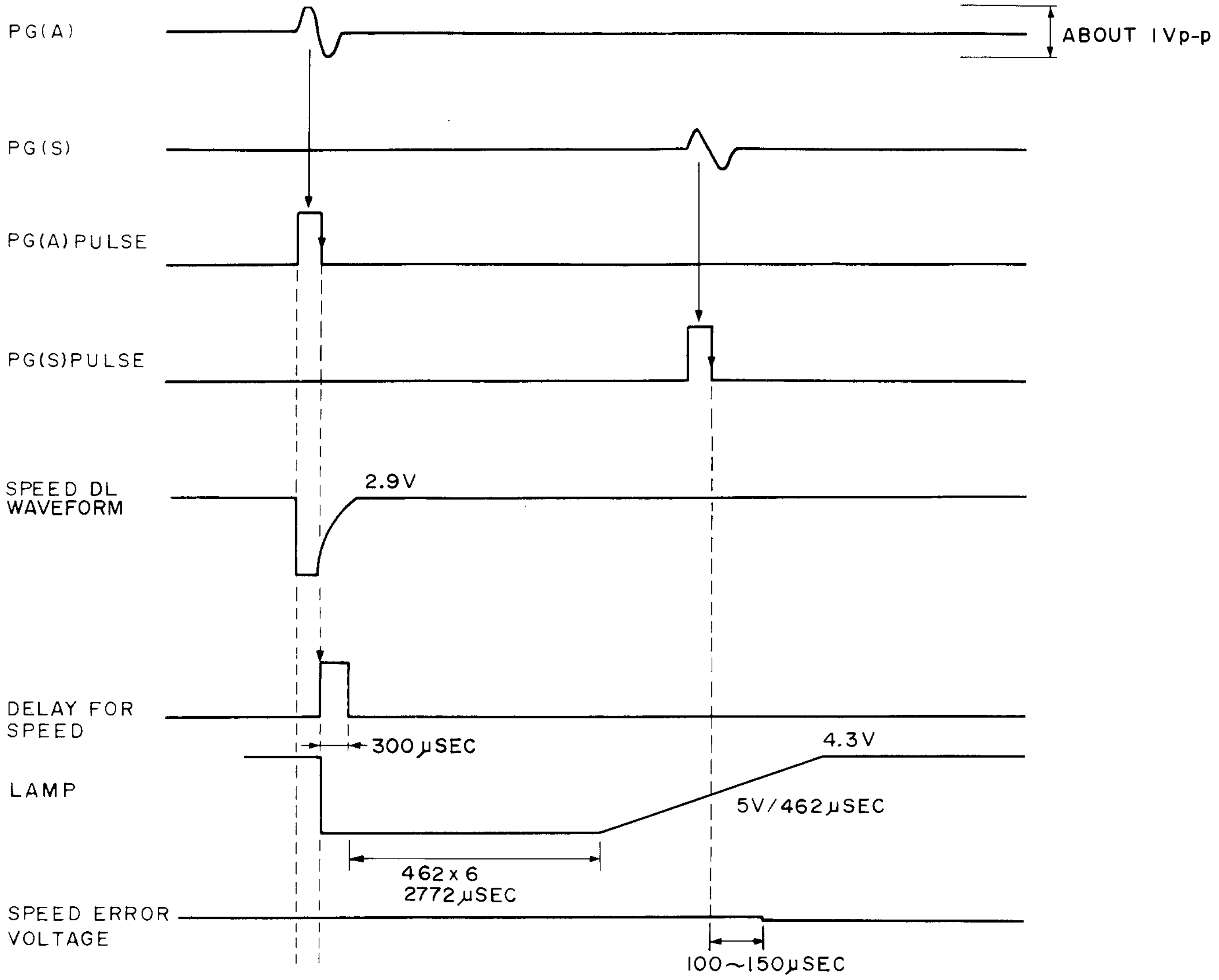


DRUM PHASE SYSTEM TIMING CHART

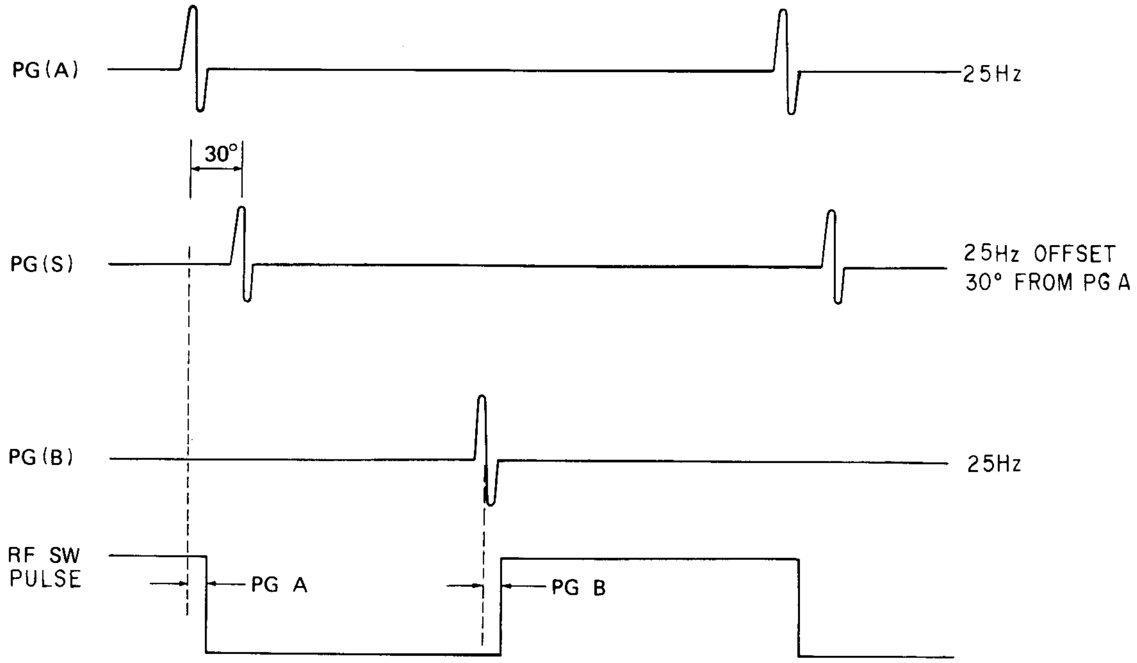


τ_1 REF VD DETECTION DELAY TIME
$\tau_{2,3}$ DIGITAL DL
τ_4 DATA EXCHANGE TIME

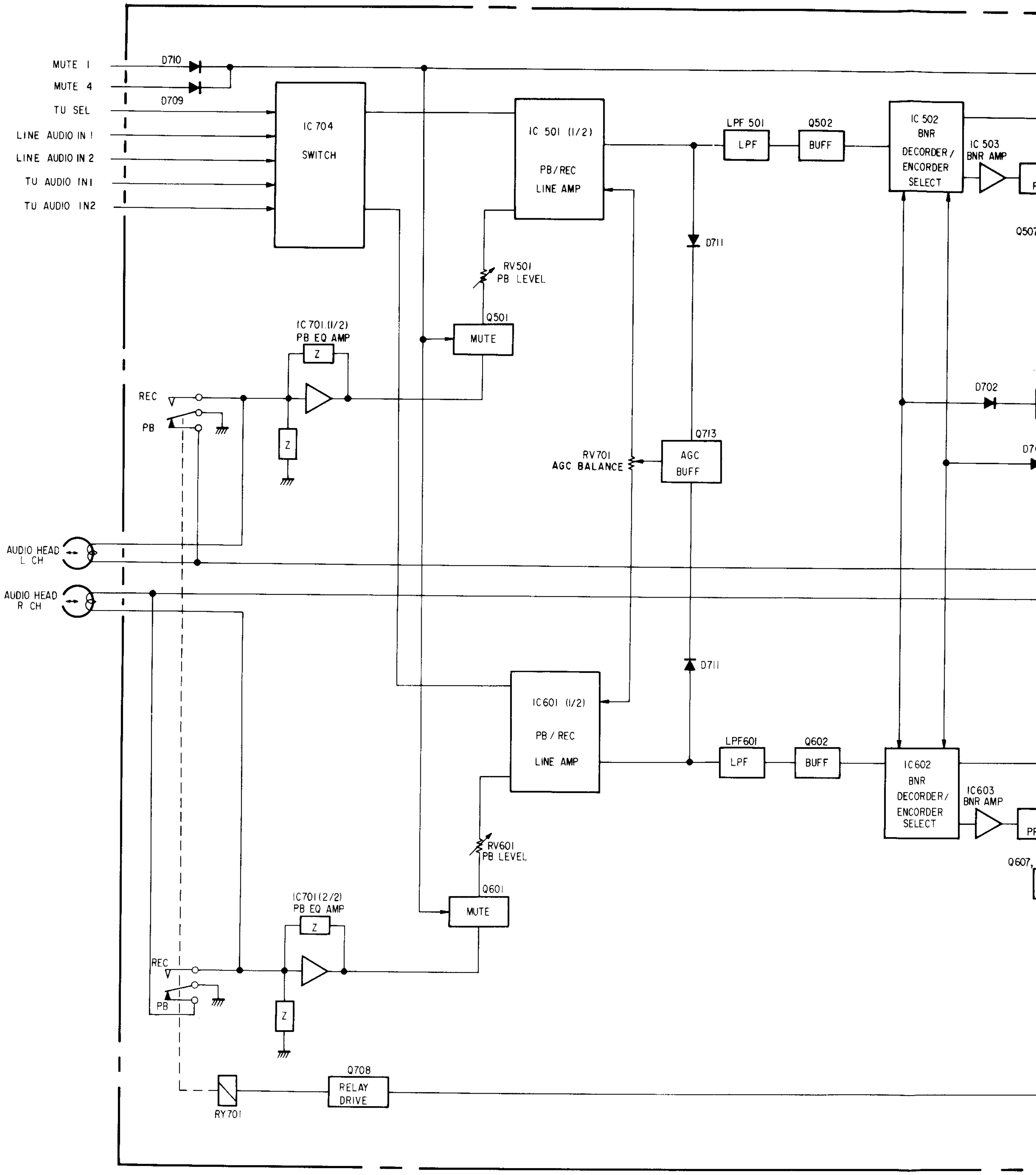
DRUM SPEED SYSTEM TIMING CHART



PG SIGNAL TIMING CHART

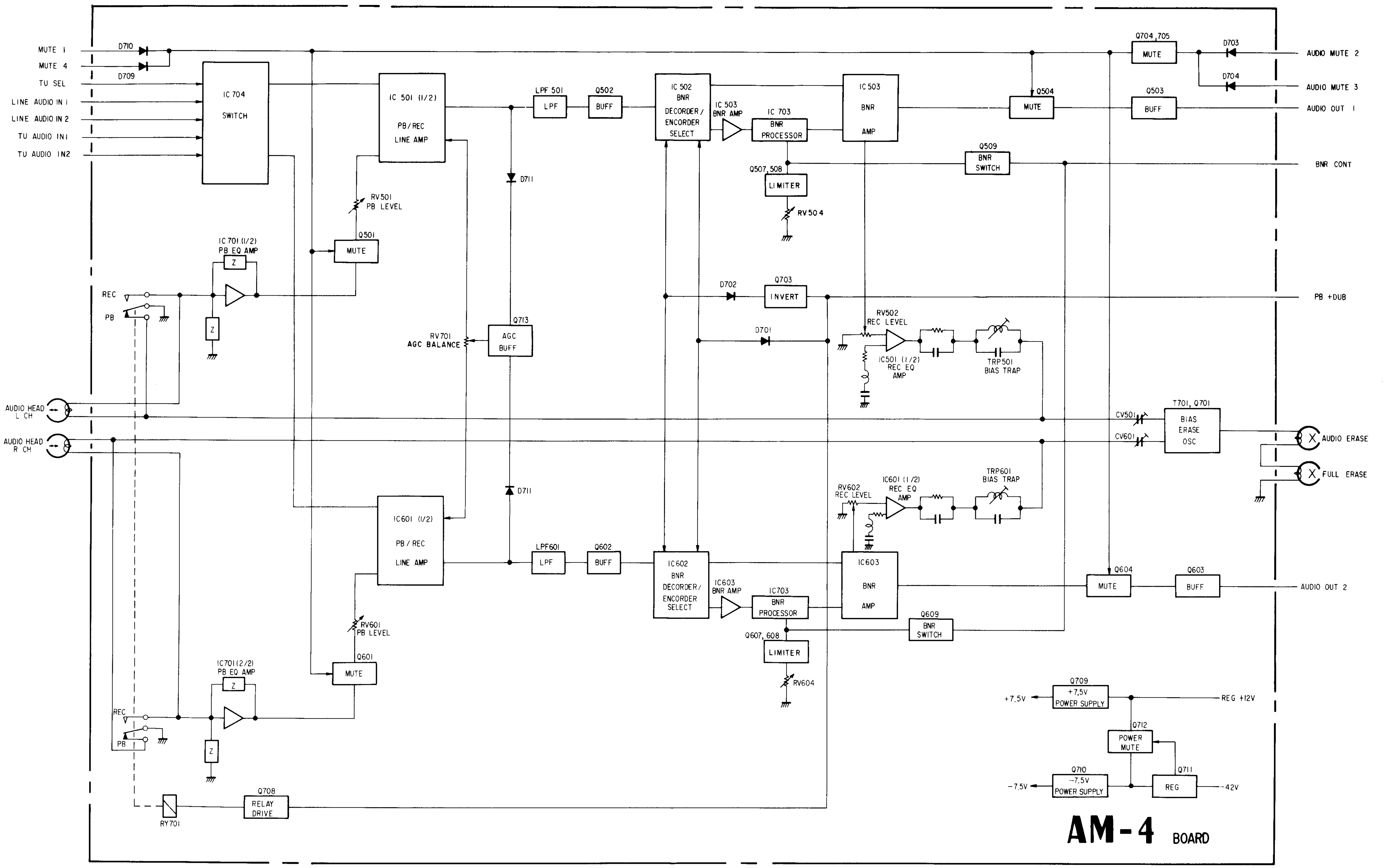


AUDIO BLOCK DIAGRAM

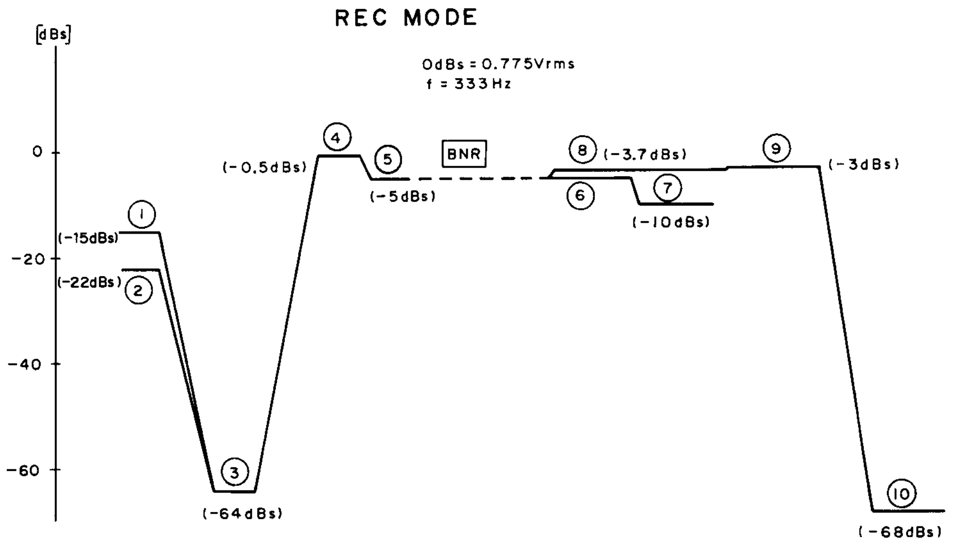

MUTE 1
MUTE 4
TU SEL
LINE AUDIO IN 1
LINE AUDIO IN 2
TU AUDIO IN1
TU AUDIO IN2
D710
D709
IC 704
SWITCH
IC 501 (1/2)
PB/REC
LINE AMP
LPF 501
LPF
Q502
BUFF
IC 502
BNR
DECORDER/
ENCORDER
SELECT
IC 503
BNR AMP
Q507
D711
RV501
PB LEVEL
Q501
MUTE
IC 701 (1/2)
PB EQ AMP
Z
REC
PB
D702
Q713
AGC
BUFF
RV701
AGC BALANCE
AUDIO HEAD L CH
AUDIO HEAD R CH
D711
IC601 (1/2)
PB / REC
LINE AMP
LPF601
LPF
Q602
BUFF
IC602
BNR
DECORDER/
ENCORDER
SELECT
IC603
BNR AMP
Q607
RV601
PB LEVEL
Q601
MUTE
IC701 (2/2)
PB EQ AMP
Z
REC
PB
Q708
RELAY
DRIVE
RY701

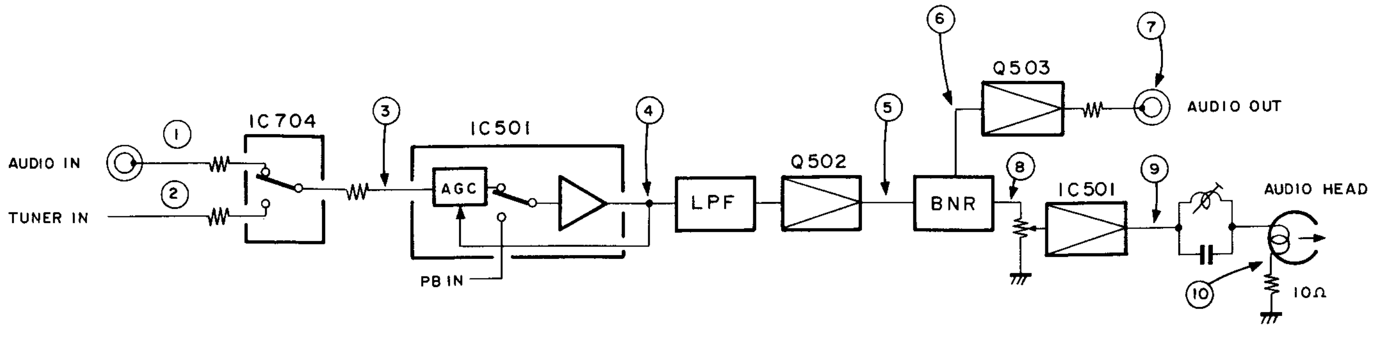
T IVp-p

AUDIO BLOCK DIAGRAM

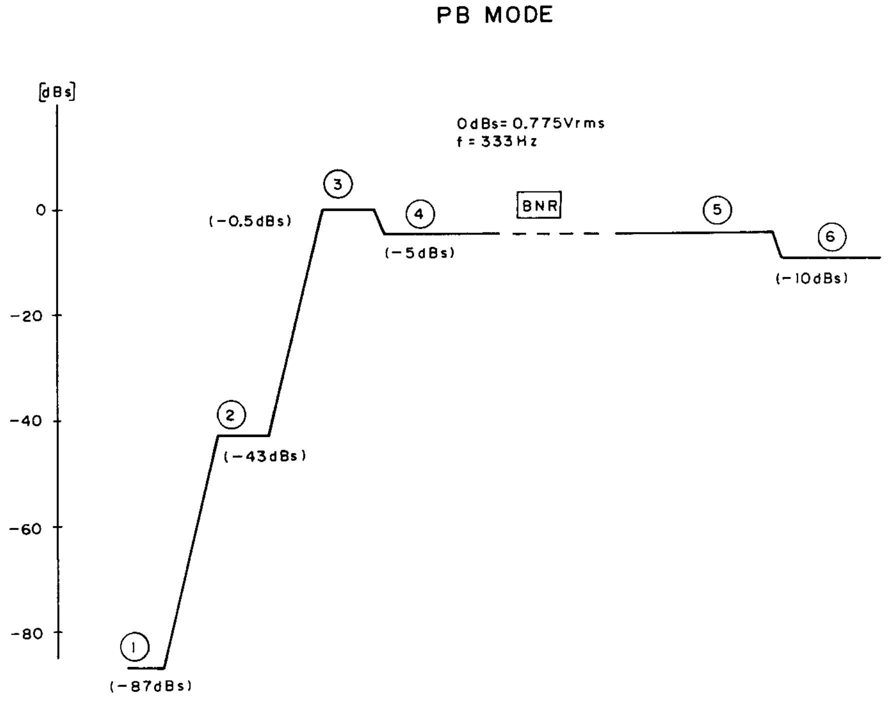

MUTE 1
MUTE 4
D710
D709
TU SEL
LINE AUDIO IN 1
LINE AUDIO IN 2
TU AUDIO IN1
TU AUDIO IN2
IC 704
SWITCH
IC 501 (1/2)
PB/REC
LINE AMP
RV501
PB LEVEL
Q501
MUTE
IC 701 (1/2)
PB EQ AMP
Z
REC
PB
LPF 501
LPF
Q502
BUFF
D711
Q713
AGC
BUFF
RV701
AGC BALANCE
IC 502
BNR
DECORDER/
ENCORDER
SELECT
IC 503
BNR AMP
IC 703
BNR
PROCESSOR
Q507, 508
LIMITER
RV504
IC 503
BNR
AMP
D702
Q703
INVERT
D701
RV502
REC LEVEL
IC501 (1/2)
REC EQ
AMP
TRP501
BIAS TRAP
Q509
BNR
SWITCH
Q504
MUTE
Q704, 705
MUTE
D703
D704
Q503
BUFF
AUDIO MUTE 2
AUDIO MUTE 3
AUDIO OUT 1
BNR CONT
PB +DUB
AUDIO HEAD
L CH
AUDIO HEAD
R CH
CV501
CV601
T701, Q701
BIAS
ERASE
OSC
AUDIO ERASE
FULL ERASE
IC601 (1/2)
PB/REC
LINE AMP
LPF601
LPF
Q602
BUFF
IC602
BNR
DECORDER/
ENCORDER
SELECT
IC603
BNR AMP
IC703
BNR
PROCESSOR
Q607, 608
LIMITER
RV604
IC603
BNR
AMP
RV602
REC LEVEL
IC601 (1/2)
REC EQ
AMP
TRP601
BIAS TRAP
Q609
BNR
SWITCH
Q604
MUTE
Q603
BUFF
AUDIO OUT 2
RV601
PB LEVEL
Q601
MUTE
IC701 (2/2)
PB EQ AMP
Q708
RELAY
DRIVE
RY701
Q709
+7.5V
POWER SUPPLY
+7.5V
REG +12V
Q712
POWER
MUTE
Q710
-7.5V
POWER SUPPLY
-7.5V
Q711
REG
-42V
AM-4 BOARD

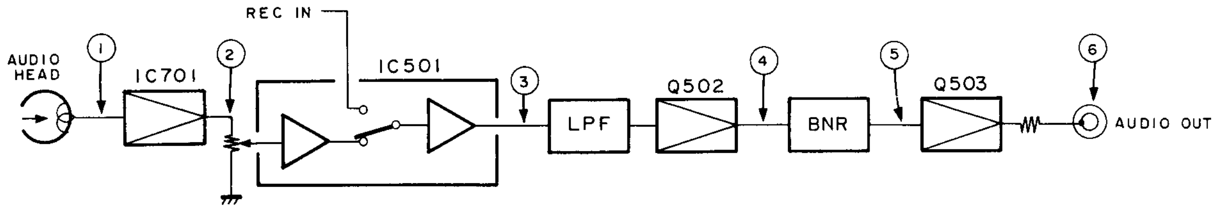
AUDIO LEVEL DIAGRAM (REC)



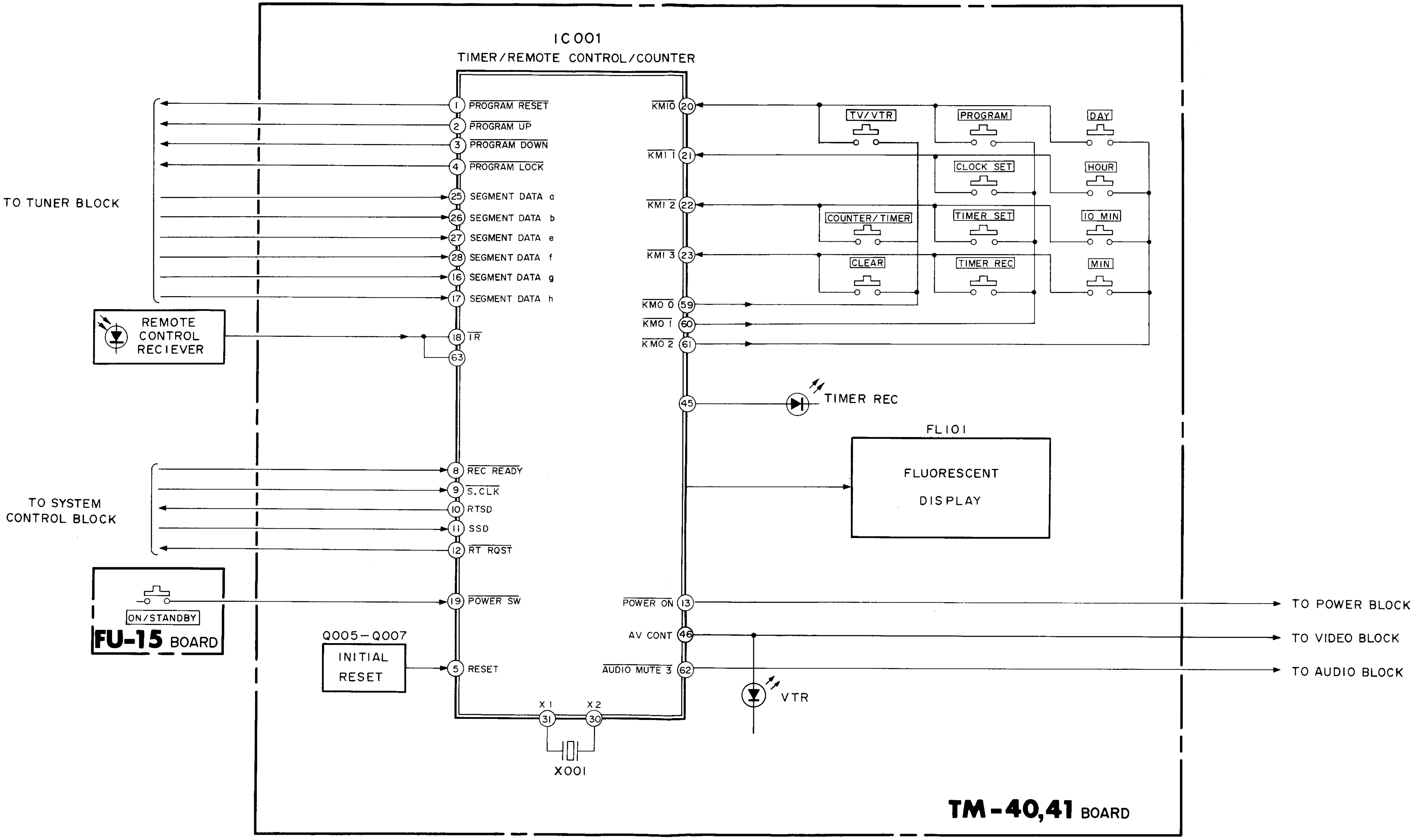

AUDIO IN
TUNER IN
①
②
IC704
③
IC501
AGC
PB IN
④
LPF
Q502
⑤
BNR
⑥
Q503
⑦
AUDIO OUT
⑧
IC501
⑨
AUDIO HEAD
⑩
10Ω

AUDIO LEVEL DIAGRAM (PB)

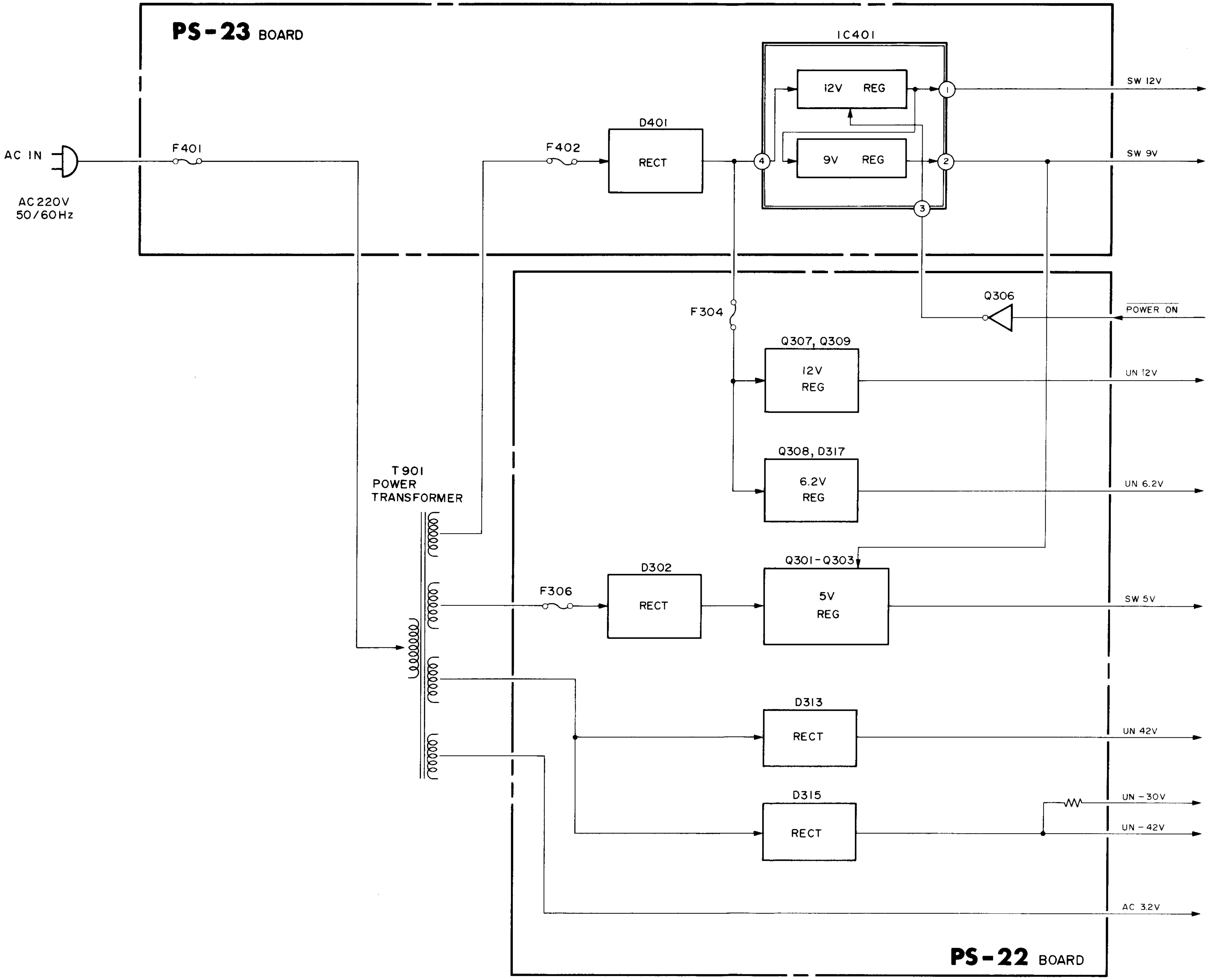



AUDIO HEAD
①
IC701
②
REC IN
IC501
③
LPF
Q502
④
BNR
⑤
Q503
⑥
AUDIO OUT

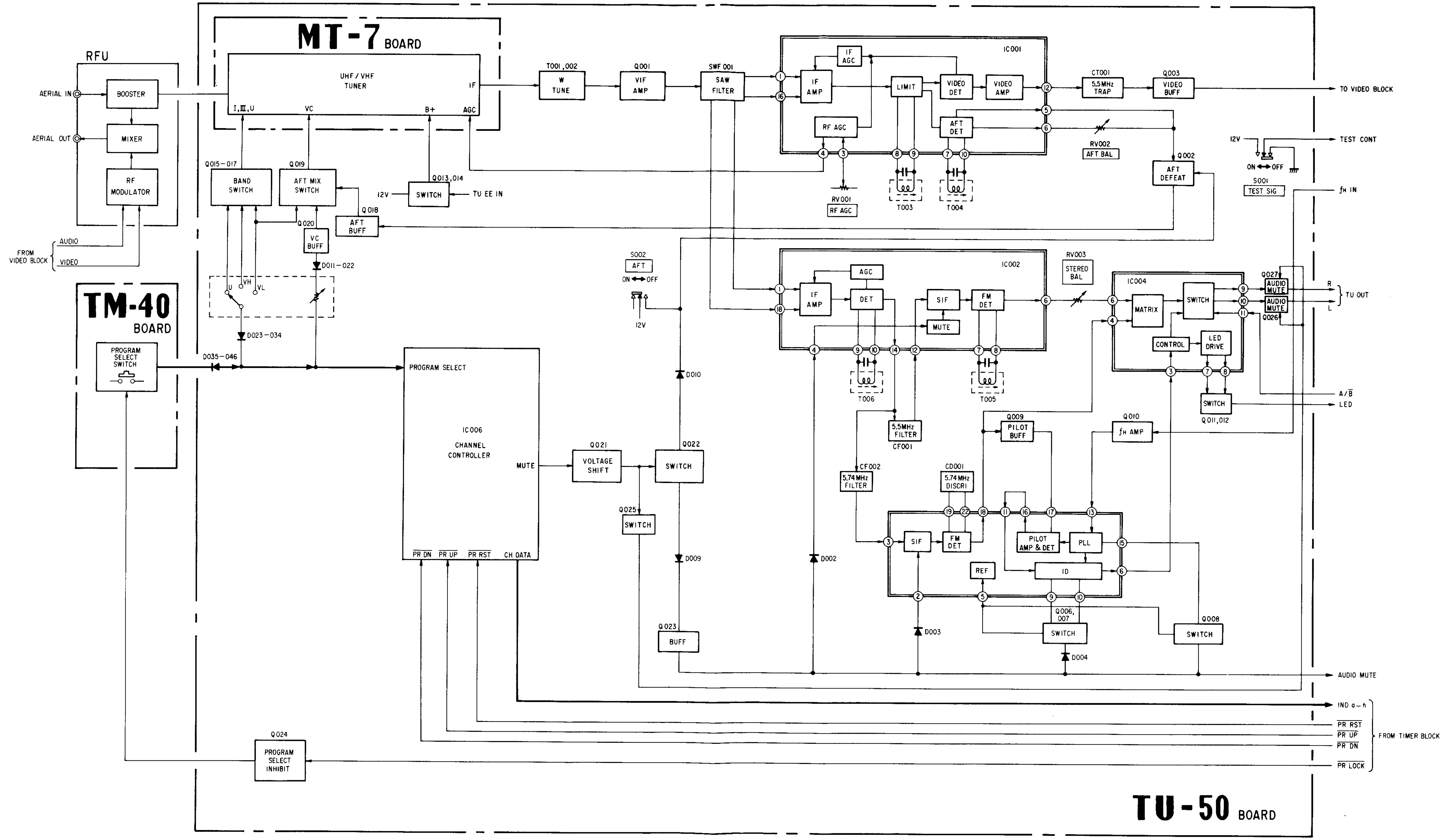
TIMER BLOCK DIAGRAM


IC001
TIMER/REMOTE CONTROL/COUNTER
TO TUNER BLOCK
1 PROGRAM RESET
2 PROGRAM UP
3 PROGRAM DOWN
4 PROGRAM LOCK
25 SEGMENT DATA a
26 SEGMENT DATA b
27 SEGMENT DATA e
28 SEGMENT DATA f
16 SEGMENT DATA g
17 SEGMENT DATA h
REMOTE CONTROL RECIEVER
18 TR
63
TO SYSTEM CONTROL BLOCK
8 REC READY
9 S.CLK
10 RTSD
11 SSD
12 RT RQST
ON/STANDBY
FU-15 BOARD
19 POWER SW
Q005-Q007
INITIAL RESET
5 RESET
X1
X2
31
30
X001
KMI0 20
KMI 1 21
KMI 2 22
KMI 3 23
KMO 0 59
KMO 1 60
KMO 2 61
TV/VTR
PROGRAM
DAY
CLOCK SET
HOUR
COUNTER/TIMER
TIMER SET
10 MIN
CLEAR
TIMER REC
MIN
45
TIMER REC
FL101
FLUORESCENT DISPLAY
POWER ON 13
AV CONT 46
AUDIO MUTE 3 62
VTR
TO POWER BLOCK
TO VIDEO BLOCK
TO AUDIO BLOCK
TM-40,41 BOARD

POWER SUPPLY BLOCK DIAGRAM

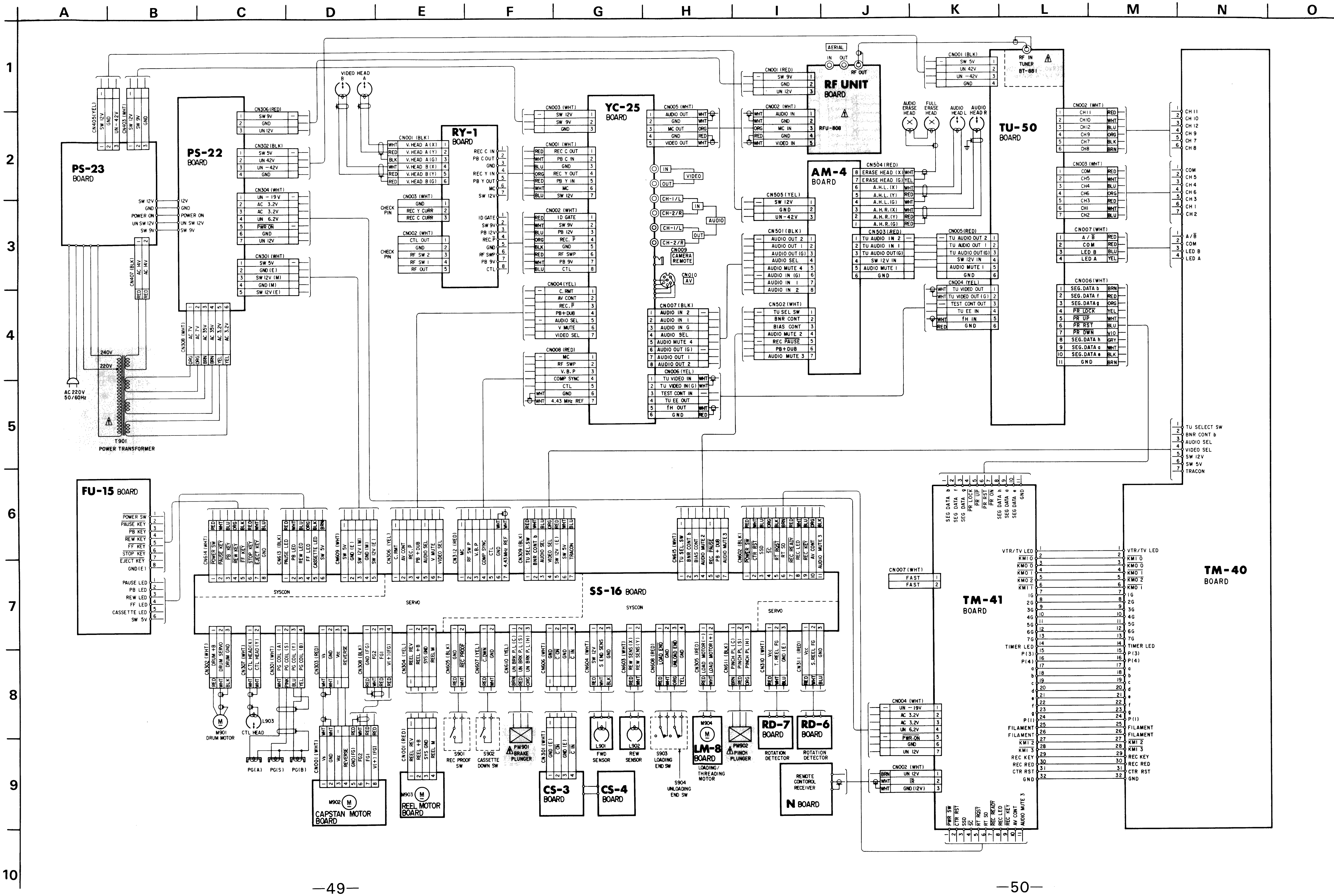

PS-23 BOARD
AC IN
AC220V
50/60Hz
F401
F402
D401
RECT
IC401
12V REG
9V REG
SW 12V
SW 9V
F304
Q306
POWER ON
Q307, Q309
12V
REG
UN 12V
Q308, D317
6.2V
REG
UN 6.2V
T901
POWER
TRANSFORMER
F306
D302
RECT
Q301-Q303
5V
REG
SW 5V
D313
RECT
UN 42V
D315
RECT
UN -30V
UN -42V
AC 3.2V
PS-22 BOARD

TUNER BLOCK DIAGRAM

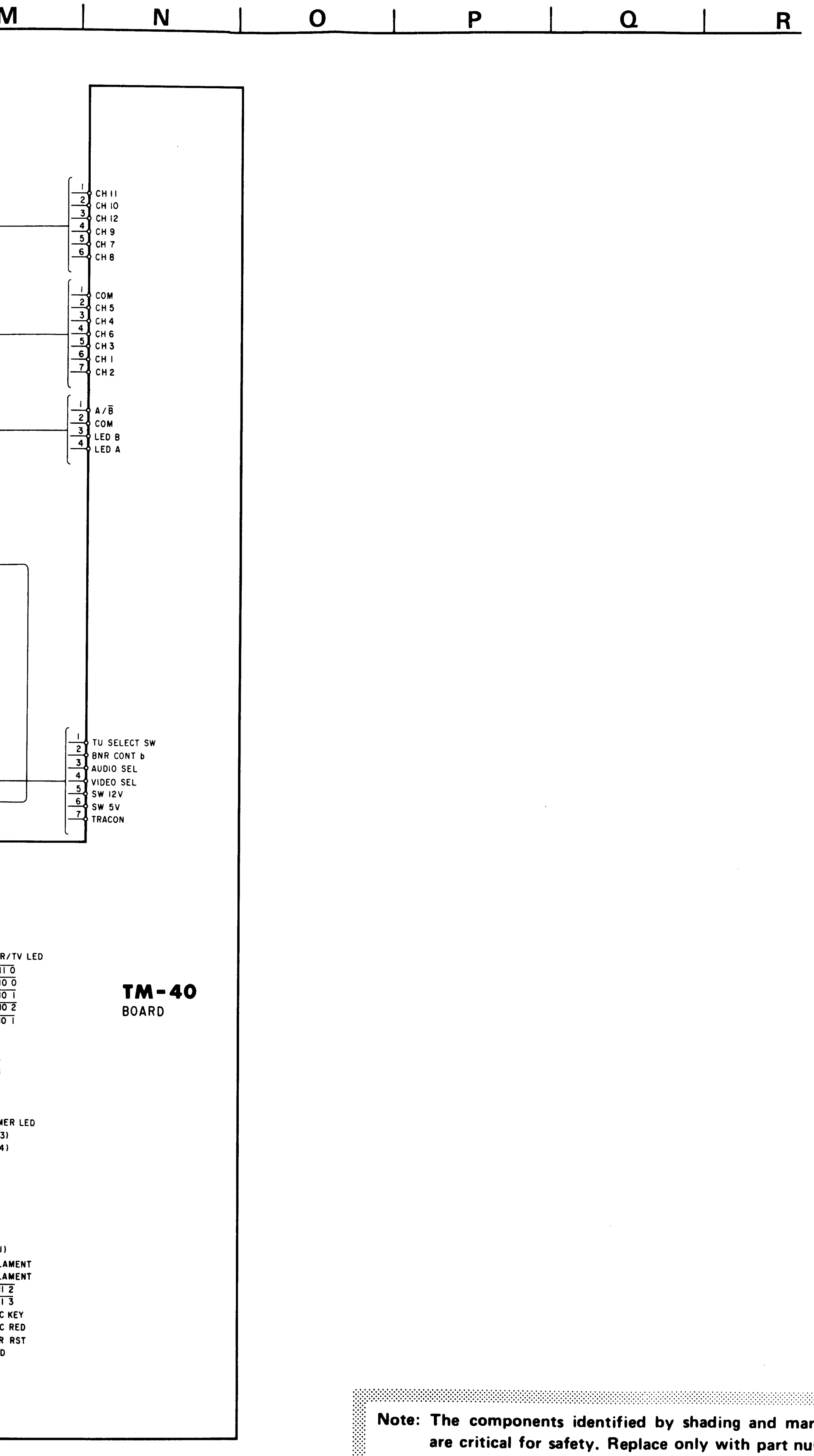


RFU
AERIAL IN
AERIAL OUT
BOOSTER
MIXER
RF MODULATOR
FROM VIDEO BLOCK
AUDIO
VIDEO
MT-7 BOARD
UHF / VHF TUNER
IF
I, III, U
VC
B+
AGC
Q015-017
BAND SWITCH
Q019
AFT MIX SWITCH
Q020
VC BUFF
Q018
AFT BUFF
Q013,014
12V
SWITCH
TU EE IN
D011-022
U
VH
VL
D023-034
TM-40 BOARD
PROGRAM SELECT SWITCH
D035-046
PROGRAM SELECT
IC006
CHANNEL CONTROLLER
MUTE
PR DN
PR UP
PR RST
CH DATA
T001,002
W TUNE
Q001
VIF AMP
SWF 001
SAW FILTER
IC001
IF AGC
IF AMP
LIMIT
VIDEO DET
VIDEO AMP
AFT DET
RF AGC
RV001
RF AGC
T003
T004
CT001
5.5MHz TRAP
Q003
VIDEO BUFF
TO VIDEO BLOCK
RV002
AFT BAL
Q002
AFT DEFEAT
12V
TEST CONT
ON OFF
S001
TEST SIG
fH IN
S002
AFT
ON OFF
12V
D010
IC002
AGC
IF AMP
DET
SIF
FM DET
MUTE
T006
T005
5.5MHz FILTER
CF001
CF002
5.74MHz FILTER
CD001
5.74MHz DISCRI
RV003
STEREO BAL
IC004
MATRIX
SWITCH
CONTROL
LED DRIVE
Q027
AUDIO MUTE
AUDIO MUTE
Q026
R
L
TU OUT
SWITCH
Q011,012
A/B
LED
Q009
PILOT BUFF
Q010
fH AMP
Q021
VOLTAGE SHIFT
Q022
SWITCH
Q025
SWITCH
D009
SIF
FM DET
PILOT AMP & DET
PLL
REF
ID
D002
D003
Q006, 007
SWITCH
D004
Q008
SWITCH
Q023
BUFF
AUDIO MUTE
IND a-h
PR RST
PR UP
PR DN
PR LOCK
FROM TIMER BLOCK
Q024
PROGRAM SELECT INHIBIT
TU-50 BOARD

FRAME SCHEMATIC DIAGRAM

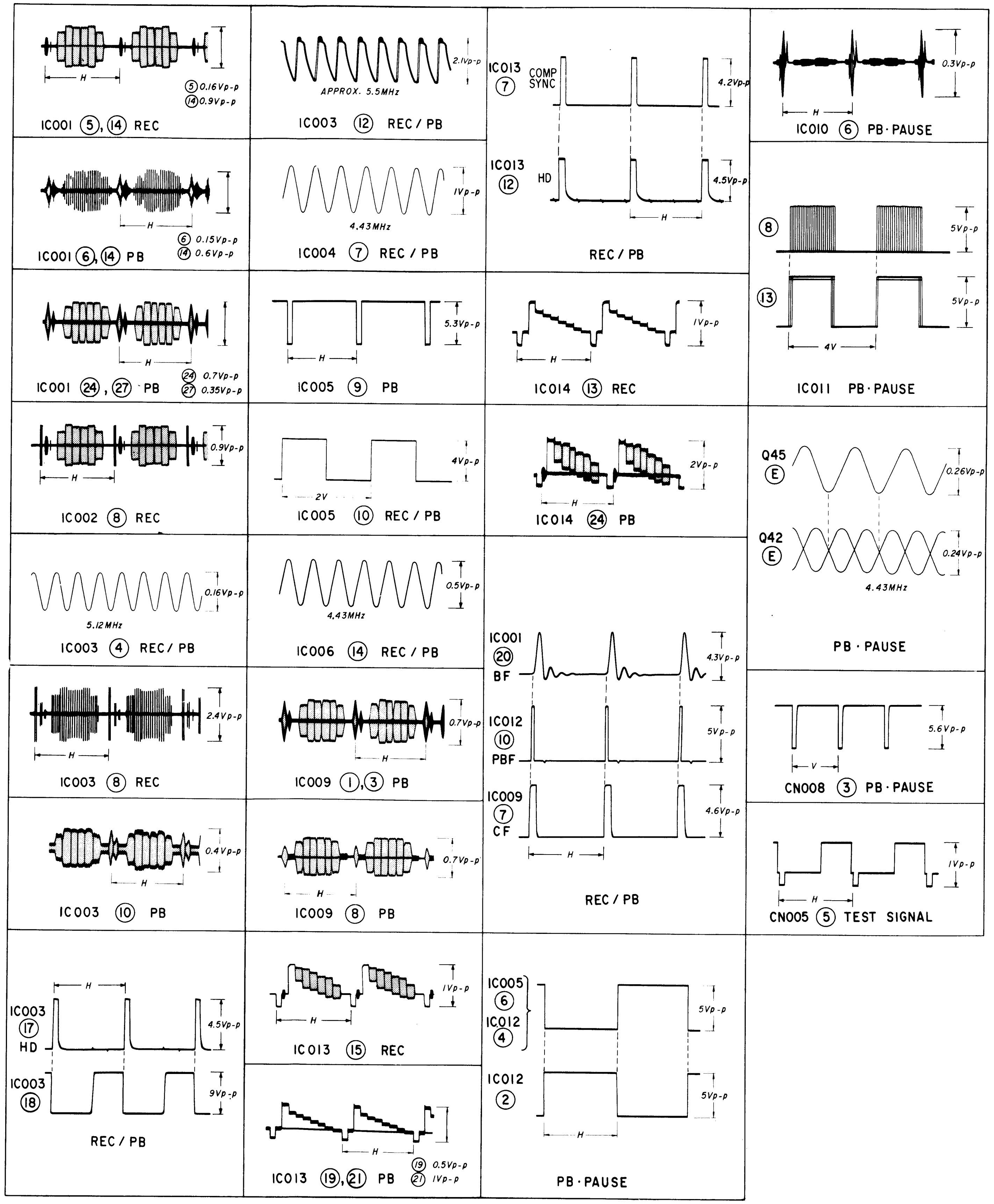

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4
5
6
7
8
9
10
PS-23 BOARD
PS-22 BOARD
T901 POWER TRANSFORMER
AC 220V 50/60Hz
240V
220V
RY-1 BOARD
VIDEO HEAD
CHECK PIN
YC-25 BOARD
CAMERA REMOTE
AV
RF UNIT BOARD
RFU-808
AERIAL
IN
OUT
RF OUT
AM-4 BOARD
TU-50 BOARD
RF IN TUNER BT-881
AUDIO ERASE HEAD
FULL ERASE HEAD
AUDIO HEAD L
AUDIO HEAD R
FU-15 BOARD
SS-16 BOARD
SYSCON
SERVO
TM-41 BOARD
TM-40 BOARD
M901 DRUM MOTOR
L903 CTL HEAD
PG(A)
PG(S)
PG(B)
M902 CAPSTAN MOTOR BOARD
M903 REEL MOTOR BOARD
S901 REC PROOF SW
S902 CASSETTE DOWN SW
PM901 BRAKE PLUNGER
CS-3 BOARD
CS-4 BOARD
L901 FWD SENSOR
L902 REW SENSOR
S903 LOADING END SW
S904 UNLOADING END SW
M904 LM-8 BOARD LOADING/THREADING MOTOR
PM902 PINCH PLUNGER
RD-7 BOARD ROTATION DETECTOR
RD-6 BOARD ROTATION DETECTOR
REMOTE CONTROL RECEIVER
N BOARD

Note: The component
are critical for s
specified.

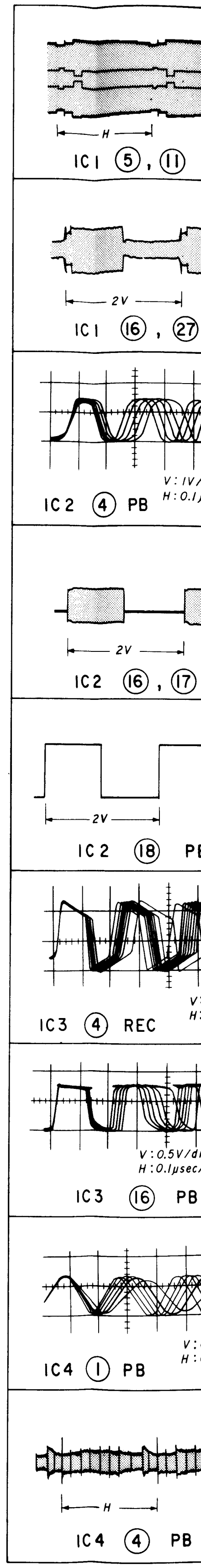

M
N
O
P
Q
R
CH 11
CH 10
CH 12
CH 9
CH 7
CH 8
COM
CH 5
CH 4
CH 6
CH 3
CH 1
CH 2
A/B̄
COM
LED B
LED A
TU SELECT SW
BNR CONT b
AUDIO SEL
VIDEO SEL
SW 12V
SW 5V
TRACON
R/TV LED
MER LED
LAMENT
LAMENT
C KEY
C RED
R RST
TM-40
BOARD

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

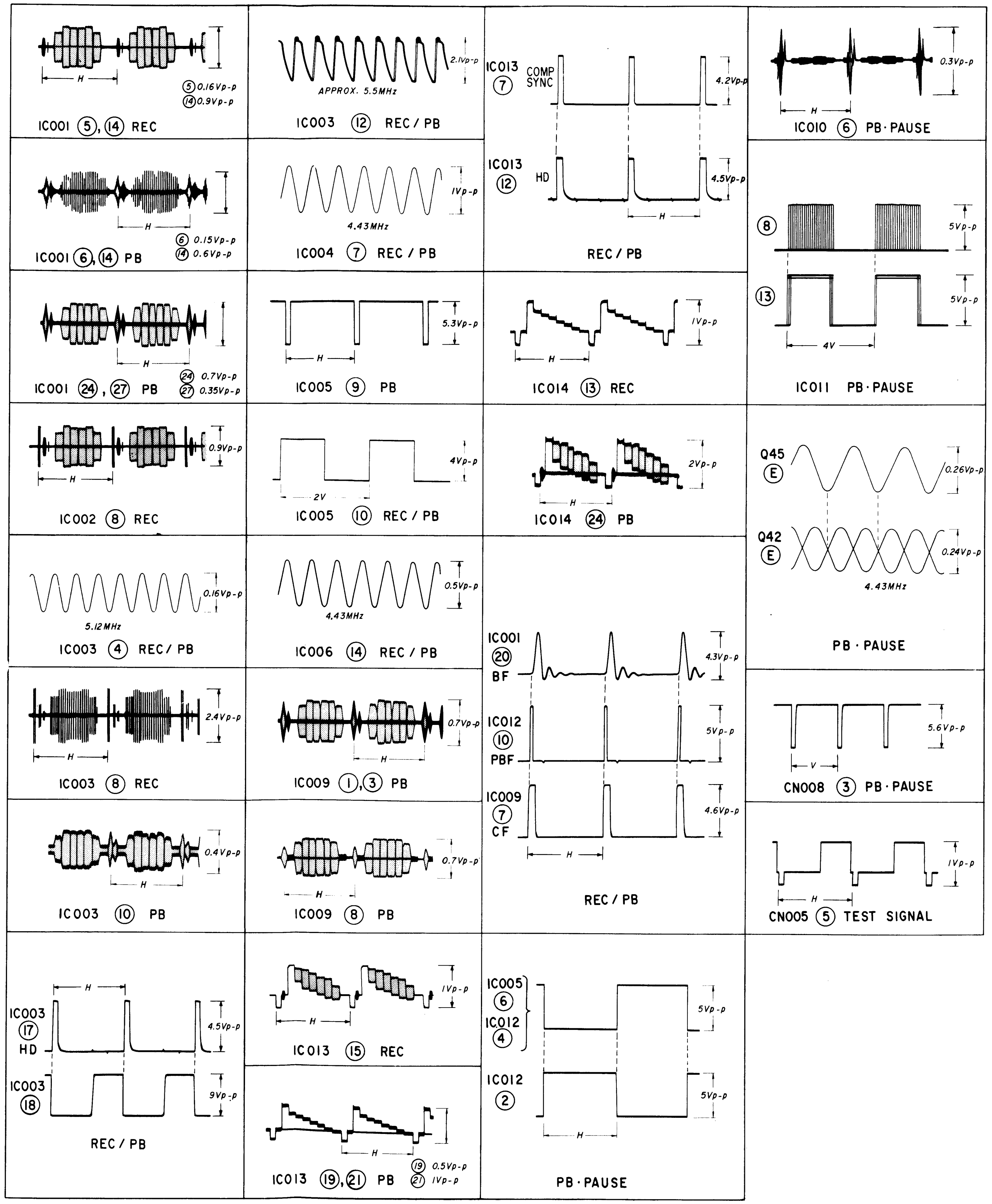
YC-25 BOARD



RY - 1 BOARD



YC-25 BOARD



IC001 ⑤, ⑭ REC

IC001 ⑥, ⑭ PB

IC001 ㉔, ㉗ PB

IC002 ⑧ REC

IC003 ④ REC/ PB

IC003 ⑧ REC

IC003 ⑩ PB

IC003 ⑰ HD

IC003 ⑱

REC / PB

IC003 ⑫ REC / PB

IC004 ⑦ REC / PB

IC005 ⑨ PB

IC005 ⑩ REC / PB

IC006 ⑭ REC / PB

IC009 ①,③ PB

IC009 ⑧ PB

IC013 ⑮ REC

IC013 ⑲,㉑ PB

IC013 ⑦

IC013 ⑫

REC / PB

IC014 ⑬ REC

IC014 ㉔ PB

IC001 ⑳

IC012 ⑩

IC009 ⑦

REC / PB

IC005 ⑥

IC012 ④

IC012 ②

PB · PAUSE

IC010 ⑥ PB · PAUSE

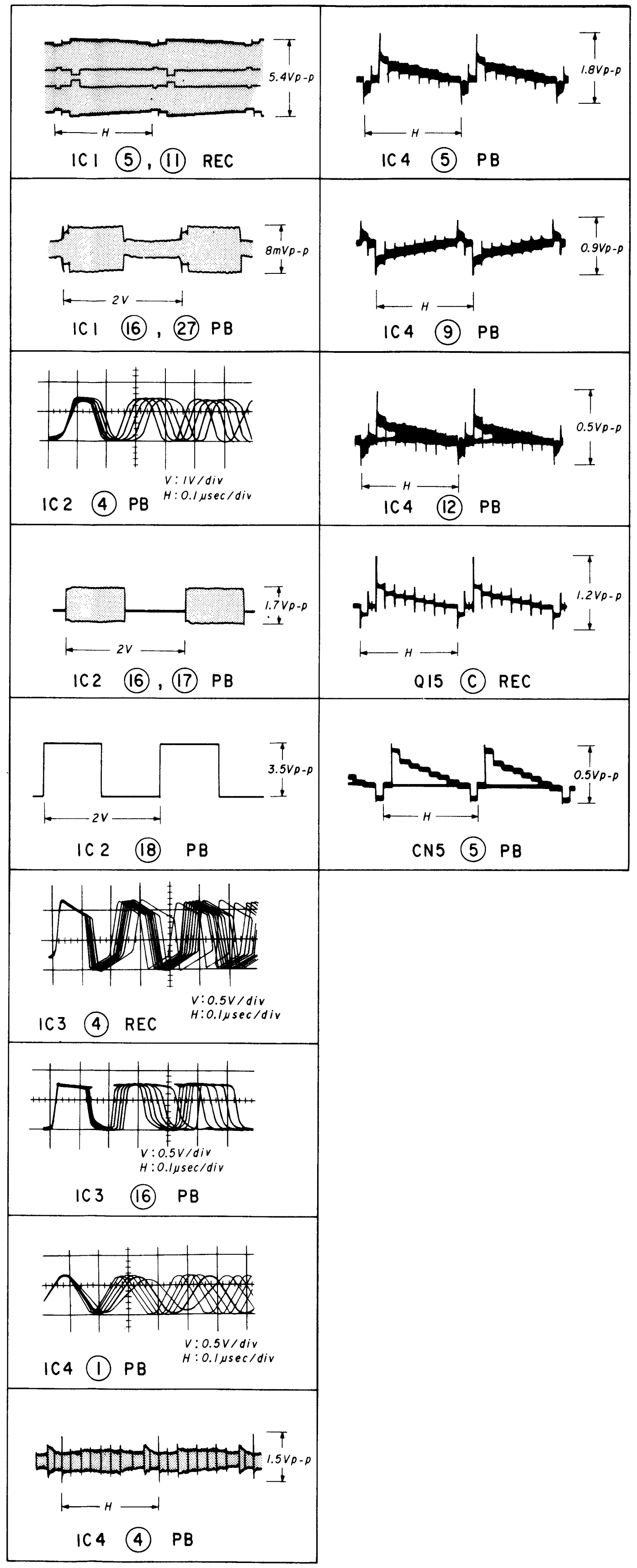
IC011 PB · PAUSE

PB · PAUSE

CN008 ③ PB · PAUSE

CN005 ⑤ TEST SIGNAL

RY - 1 BOARD



IC1 ⑤, ⑪ REC

IC1 ⑯, ㉗ PB

IC2 ④ PB

IC2 ⑯, ⑰ PB

IC2 ⑱ PB

IC3 ④ REC

IC3 ⑯ PB

IC4 ① PB

IC4 ④ PB

IC4 ⑤ PB

IC4 ⑨ PB

IC4 ⑫ PB

Q15 Ⓒ REC

CN5 ⑤ PB

IC 002

MODE \ PIN	1	2	3	4	5	6	7	8	9
SECAM REC	6.2	4.5	6.2	0	GND	6.2	GND	5.4	9
SECAM PB	6.2	0	6.2	0	GND	6.2	GND	5.4	9

IC 005

MODE \ PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14
SECAM REC	0.1	—	GND	—	—	2.7	—	—	5	2.1	2.5	GND	2.7	5.3
SECAM PB	4.5	—	GND	—	—	2.7	—	—	5.3	2.2	2.5	GND	2.7	5.4

IC 007

MODE \ PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
SECAM REC	4.4	0.2	5.5	GND	—	—	4.5	0	4.7	—	4.7	4.7	—	4.7	8.3	9
SECAM PB	4.5	0.2	5.6	GND	—	—	4.5	0	4.7	—	4.7	4.7	—	4.7	8.3	9

IC 008

MODE \ PIN	1	2	3	4	5	6	7	8	9
SECAM REC	6.2	0.8	6.1	0.2	GND	6.1	GND	5.4	9
SECAM PB	6.2	0.8	6.1	4.6	GND	6.2	GND	5.4	9

IC 009

MODE \ PIN	1	2	3	4	5	6	7	8	9
SECAM REC	6.1	2.1	6.1	2.6	GND	6.1	0.4	5.3	9
SECAM PB	6.1	2.6	6.1	2	GND	6.1	0.4	5.3	9

IC 010

MODE \ PIN	1	2	3	4	5	6	7	8	9
SECAM REC	9	—	—	—	GND	2.7	2	0.7	9
SECAM PB	9	—	—	—	GND	2.7	2	0.7	9

IC 011

MODE \ PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14
SECAM REC	2.6	2.9	2	0.8	2.9	GND	GND	0	GND	0	—	2.2	3	5.3
SECAM PB	2.8	2.4	2.2	0.8	2.4	GND	GND	0	GND	0	—	3	2.2	5.4

MODE \ Q	4			10			11			12			17			18			22		
	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E
SECAM REC	0.4	0.1	GND	3.1	4.8	2.4	7.9	2.3	8.5	2.9	8.5	2.3	0.6	0	GND	0	4.5	GND	0.6	0	GND
SECAM PB	0.4	4.5	GND	3.1	4.8	2.4	7.9	2.3	8.5	2.9	8.5	2.3	0.6	0	GND	0.6	0	GND	0.6	0	GND

MODE \ Q	23			31			32			33			34			35			36		
	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E
SECAM REC	0.2	0.2	GND	0.7	0	GND	0.6	0	GND	7.6	1.6	8.2	1.6	7.8	1.2	7.8	GND	8.2	1.6	GND	1.9
SECAM PB	0 2	4.6	GND	0.7	0	GND	0.6	0	GND	7.8	1.4	8.3	1.4	8.1	0.9	8.1	GND	8.3	1.4	GND	2.1

MODE \ Q	37			38			69		
	B	C	E	B	C	E	B	C	E
SECAM REC	5.3	0	5.3	5.3	0	5.3	0.2	GND	0.8
SECAM PB	5.3	0	5.4	5.3	0	5.4	0.2	GND	0.8

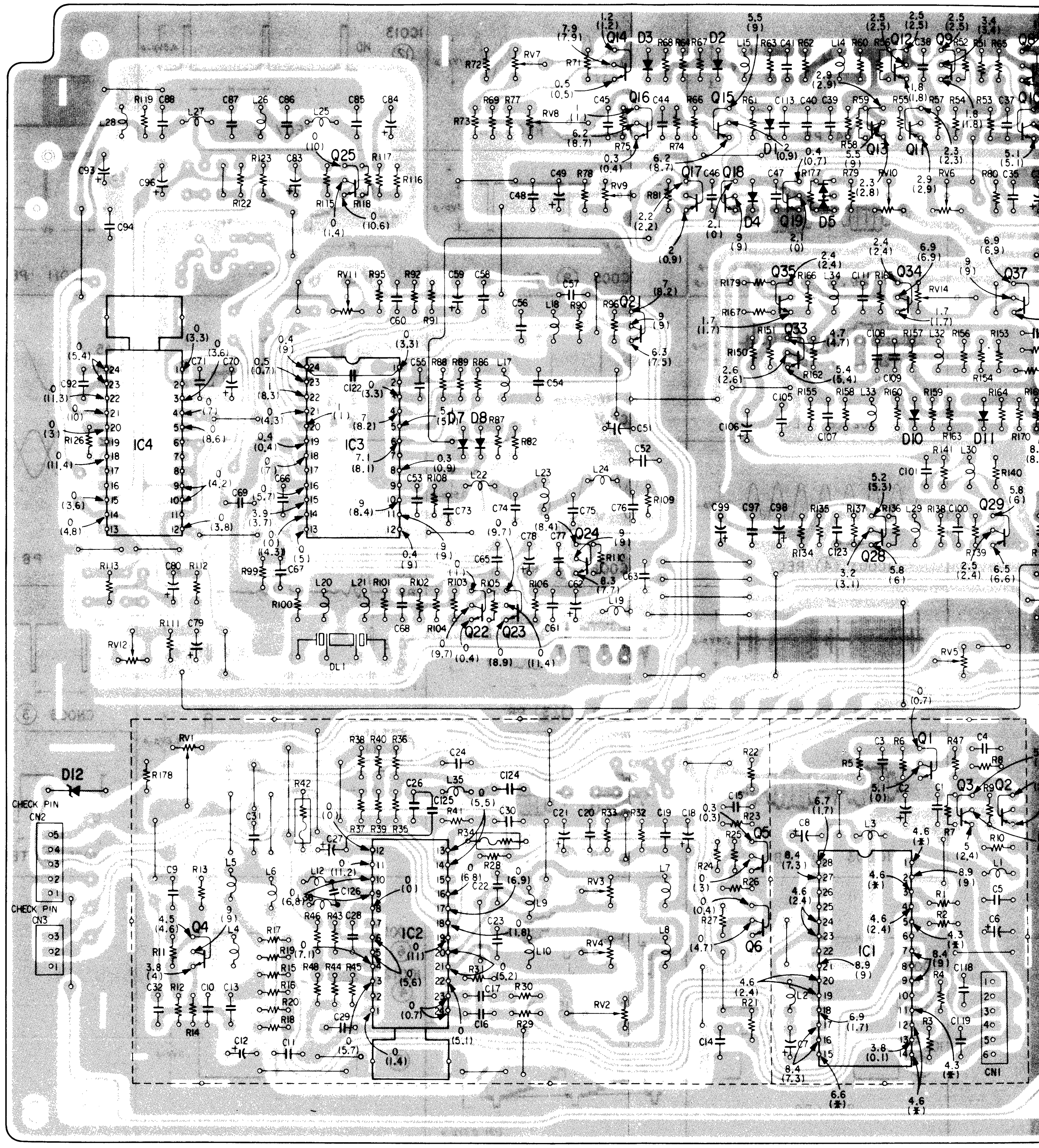
YC-25 (Y & CHROMA SIGNALS RECORD/PLAYBACK PROCESS) RY-1 (LOW CONVERTED CHROMA & Y-FM SIGNALS, RECORD/PLAYBACK AMP)

A B C D E F G H I J

– Ref. No. YC-25 BOARD: 1000 series, RY-1 BOARD: 2000 series –

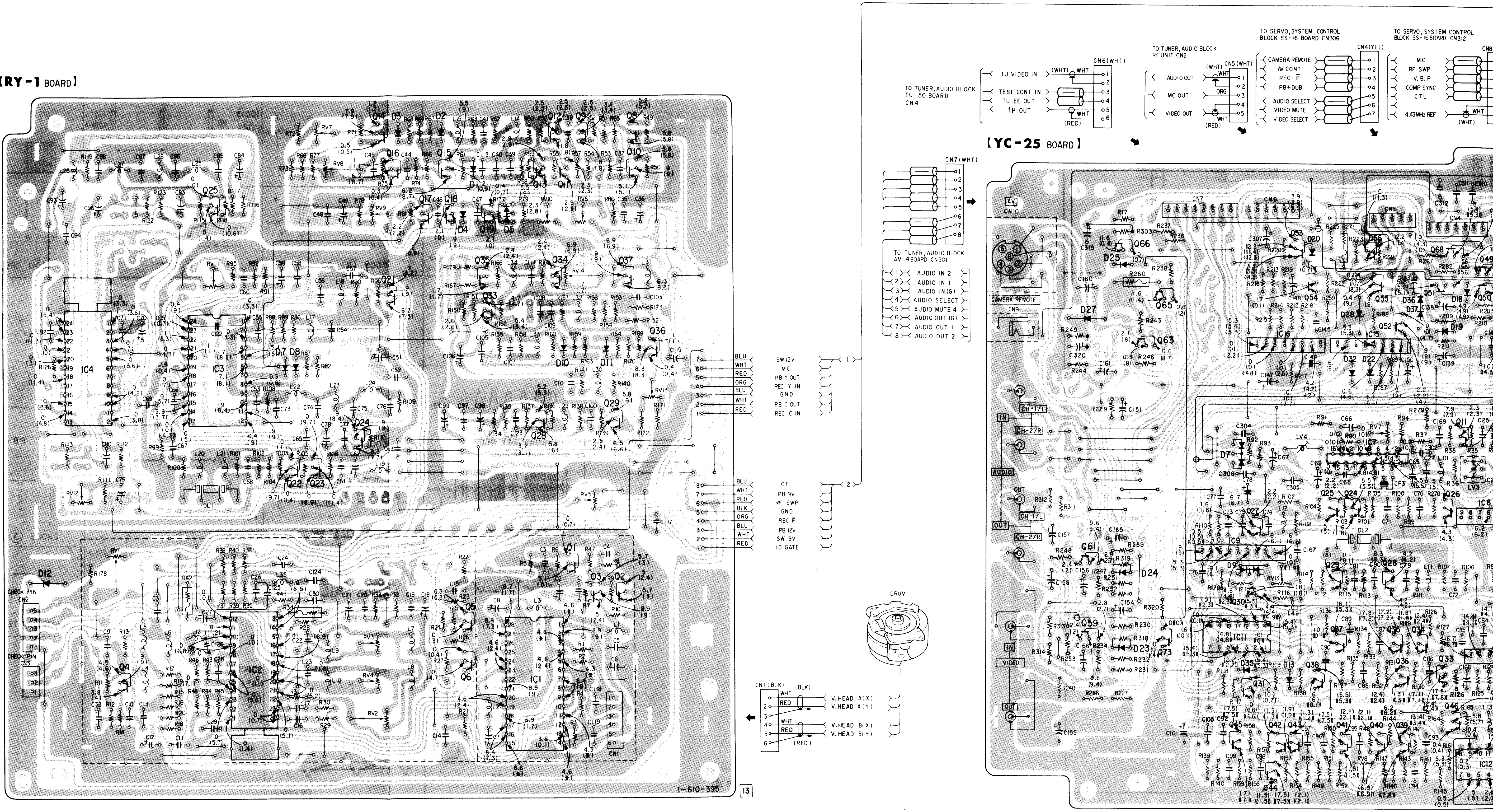
	IC · Q	D	RV
2	14 12 9 8	3,2	RV7
	16 15 13,11 10		
3		1	RV8
	25 17,18 19	4,5	RV10,RV6
			RV9
4	35 34 37		RV14
	33		RV11
	21		
5	36	10 11	
		7,8	
	IC4 IC3		RV13
	28 29		
6	24		
	22 23		RV12 RV5
7	1		RV1
	3,2	12	
8	5		RV3
	6		
	4 IC2 IC1		RV4
9			RV2

[RY-1 BOARD]


IC1
IC2
IC3
IC4
Q1
Q2
Q3
Q4
Q5
Q6
Q12
Q13
Q14
Q15
Q16
Q17
Q18
Q19
Q21
Q22
Q23
Q24
Q25
Q28
Q29
Q33
Q34
Q35
Q37
D1
D2
D3
D4
D5
D7
D8
D10
D11
D12
DL1
RV1
RV2
RV3
RV4
RV5
RV6
RV7
RV8
RV9
RV10
RV11
RV12
RV13
RV14
CHECK PIN
CN2
CHECK PIN
CN3
CN1

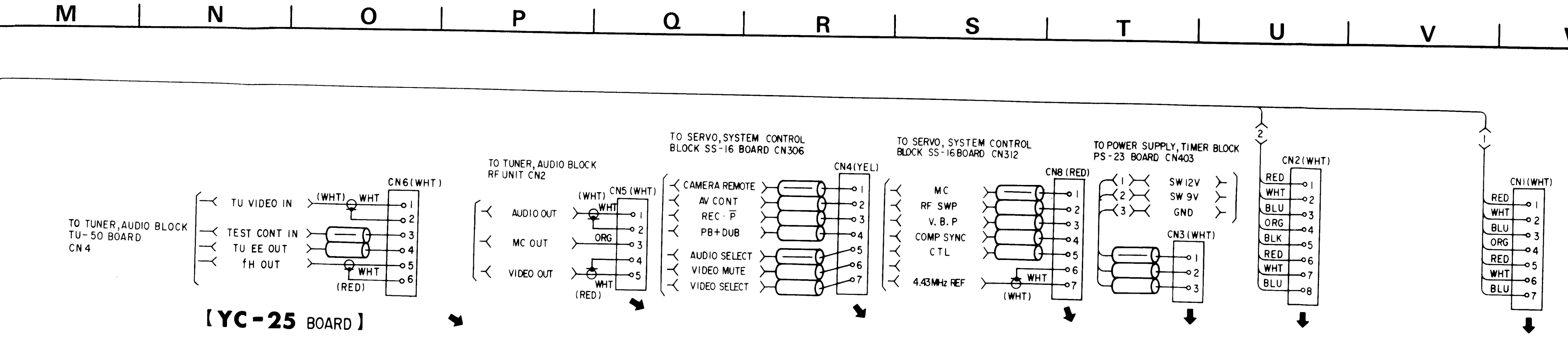
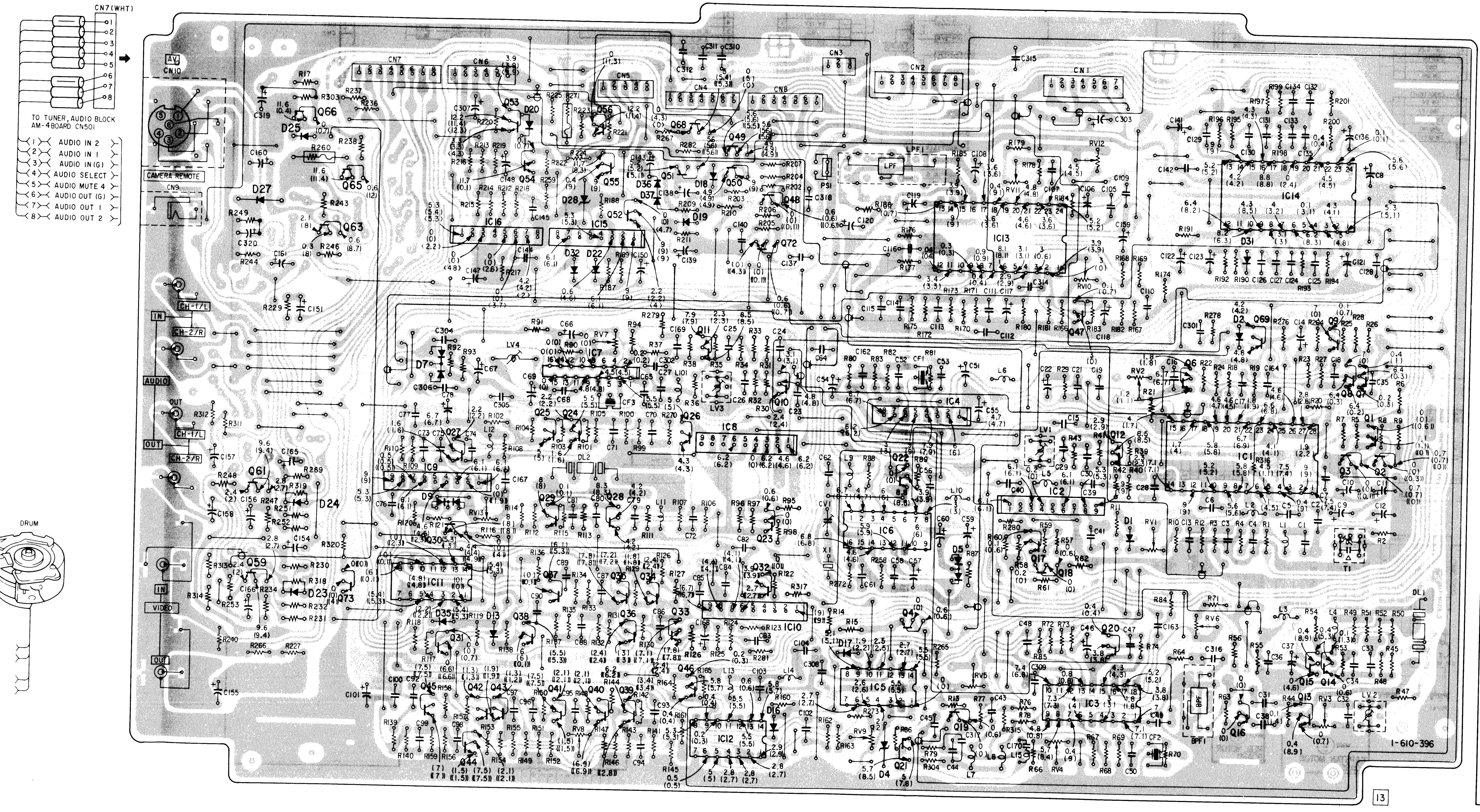
ECORD/ **RY-1** (LOW CONVERTED CHROMA & Y-FM SIGNALS, RECORD/PLAYBACK AMP)

-1 BOARD: 2000 series –

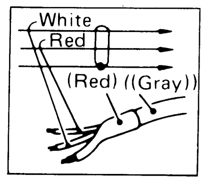


【RY-1 BOARD】
IC1
IC2
IC3
IC4
CN1
CN2
CN3
CHECK PIN
DL1
1-610-395
13
SW12V
MC
PB Y OUT
REC Y IN
GND
PB C OUT
REC C IN
CTL
PB 9V
RF SWP
GND
REC P̄
PB 12V
SW 9V
ID GATE
BLU
WHT
RED
ORG
BLK
CN1 (BLK)
V.HEAD A(X)
V.HEAD A(Y)
V.HEAD B(X)
V.HEAD B(Y)
DRUM
TO TUNER, AUDIO BLOCK TU-50 BOARD CN4
TU VIDEO IN
TEST CONT IN
TU EE OUT
fH OUT
CN6 (WHT)
TO TUNER, AUDIO BLOCK RF UNIT CN2
AUDIO OUT
MC OUT
VIDEO OUT
CN5 (WHT)
TO SERVO, SYSTEM CONTROL BLOCK SS-16 BOARD CN306
CAMERA REMOTE
AV CONT
REC P̄
PB+DUB
AUDIO SELECT
VIDEO MUTE
VIDEO SELECT
CN4 (YEL)
TO SERVO, SYSTEM CONTROL BLOCK SS-16 BOARD CN312
MC
RF SWP
V. B. P
COMP SYNC
CTL
4.43MHz REF
CN7 (WHT)
TO TUNER, AUDIO BLOCK AM-4 BOARD CN501
AUDIO IN 2
AUDIO IN 1
AUDIO IN (G)
AUDIO SELECT
AUDIO MUTE 4
AUDIO OUT (G)
AUDIO OUT 1
AUDIO OUT 2
【YC-25 BOARD】
AV CN10
CAMERA REMOTE
CN9
IN
CH-1/L
CH-2/R
AUDIO
OUT
VIDEO
IC5
IC6
IC7
IC8
IC9
IC11
IC12

【YC-25 BOARD】



M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z
A1
B1
TO TUNER, AUDIO BLOCK TU-50 BOARD CN4
TU VIDEO IN
TEST CONT IN
TU EE OUT
fH OUT
(WHT)
WHT
(RED)
CN6(WHT)
TO TUNER, AUDIO BLOCK RF UNIT CN2
AUDIO OUT
MC OUT
VIDEO OUT
ORG
CN5 (WHT)
TO SERVO, SYSTEM CONTROL BLOCK SS-16 BOARD CN306
CAMERA REMOTE
AV CONT
REC · P̄
PB+DUB
AUDIO SELECT
VIDEO MUTE
VIDEO SELECT
CN4(YEL)
TO SERVO, SYSTEM CONTROL BLOCK SS-16 BOARD CN312
MC
RF SWP
V. B. P
COMP SYNC
CTL
4.43MHz REF
CN8 (RED)
TO POWER SUPPLY, TIMER BLOCK PS-23 BOARD CN403
SW 12V
SW 9V
GND
CN3 (WHT)
CN2 (WHT)
CN1 (WHT)
RED
WHT
BLU
ORG
BLK
CN7(WHT)
TO TUNER, AUDIO BLOCK AM-4 BOARD CN501
AUDIO IN 2
AUDIO IN 1
AUDIO IN (G)
AUDIO SELECT
AUDIO MUTE 4
AUDIO OUT (G)
AUDIO OUT 1
AUDIO OUT 2
AV CN10
CAMERA REMOTE
CN9
CH-1/L
CH-2/R
IN
AUDIO
OUT
VIDEO
DRUM
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
LPF
BPF
DL1
DL2
1-610-396
13

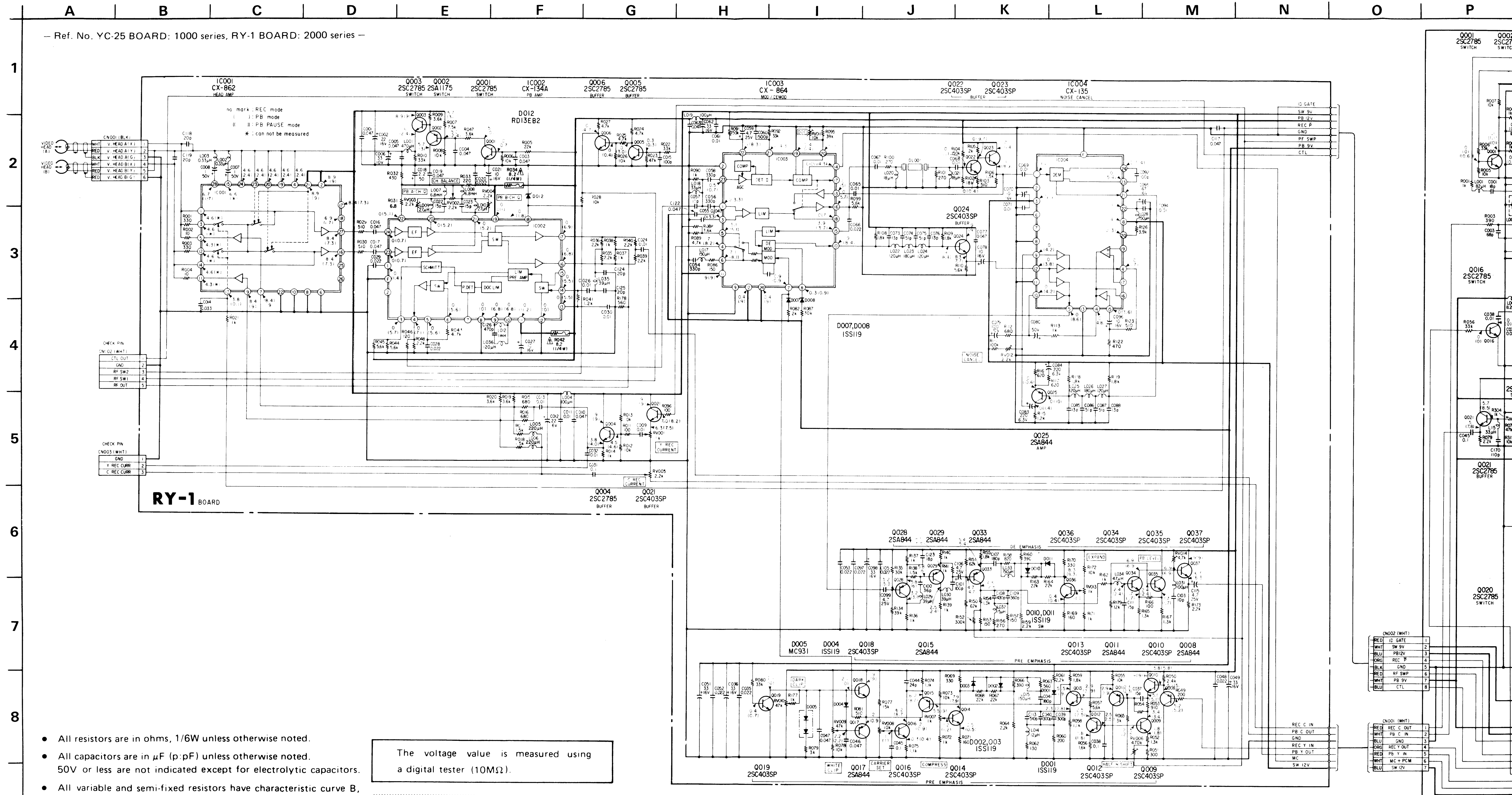
- Color code of sleeving over the end of the jacket.


White
Red
(Red) ((Gray))

- ○— indicates a lead wire mounted on the component side.
- ●— indicates a lead wire mounted on the printed side.
- ▨ Soldering side
- ⁞ B + pattern

IC·Q	D	ADJ
66 53 56 68	20 25	RV12 RV11
49 IC14		
65 54 55 51 52 50	18	
63 IC16 IC15 48 IC13 72	27 28 36 37 19	
	32 22 31	RV10
47 69 9	2	
11 IC7 10 6 8 7	7	RV7 RV2
1 25 24 26 IC4 27 IC8 12 IC1 22 3,2		LV4 LV3 LV1
61 IC9 IC6 IC2	24 9	CV1 RV13 RV1
29 28 23 30 17 18 32	1	
59 73 IC11 37 35 34 IC10 4 38 31 36 33 20 15 14	5 23 35 13	RV6
46	17	
IC5 IC3 16 13 45 42 43 41 40 39 19 44 21		RV5 RV3 LV2
IC12	16 4	RV9 RV8 RV4

YC-25 (Y & CHROMA SIGNALS RECORD/ PLAYBACK PROCESS) **RY-1** (LOW CONVERTED CHROMA & Y-FM SIGNALS, RECORD/PLAYBACK AMP)

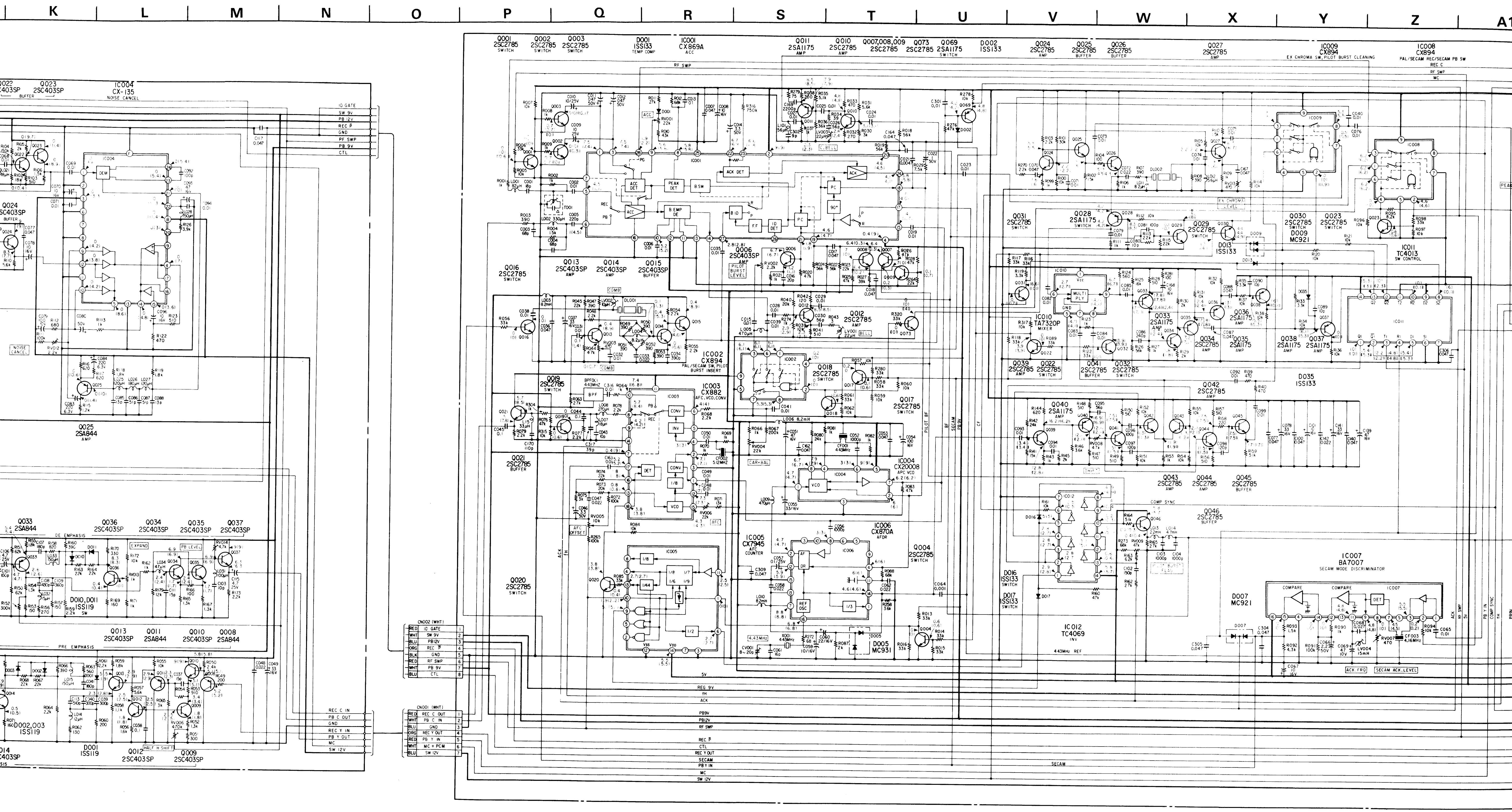

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4
5
6
7
8
9
10
– Ref. No. YC-25 BOARD: 1000 series, RY-1 BOARD: 2000 series –
IC001 CX-862 HEAD AMP
Q003 Q002 2SC2785 2SA1175 SWITCH SWITCH
Q001 2SC2785 SWITCH
IC002 CX-134A PB AMP
Q006 2SC2785 BUFFER
Q005 2SC2785 BUFFER
IC003 CX-864 MOD / DEMOD
Q022 2SC403SP
Q023 2SC403SP BUFFER
IC004 CX-135 NOISE CANCEL
Q001 2SC2785 SWITCH
no mark : REC mode
( ) : PB mode
(( )) : PB PAUSE mode
* : can not be measured
D012 RD13EB2
VIDEO HEAD (A)
VIDEO HEAD (B)
CN001 (BLK)
V. HEAD A(X)
V. HEAD A(Y)
V. HEAD A(G)
V. HEAD B(X)
V. HEAD B(Y)
V. HEAD B(G)
CH BALANCE
PB B-CH Q
PB B-CH Q
EF
SW
SCHMITT
P.DET
DOC LIM
LIM PRE AMP
COMP
DET
AGC
LIM
DE MOD
MOD
DEM
Q024 2SC403SP BUFFER
D007, D008 1SS119
NOISE CANCEL
CHECK PIN CN002 (WHT)
CTL OUT
GND
RF SW2
RF SW1
RF OUT
CHECK PIN CN003 (WHT)
GND
Y REC CURR
C REC CURR
Y REC CURRENT
C REC CURRENT
Q004 2SC2785 BUFFER
Q021 2SC403SP BUFFER
Q025 2SA844 AMP
RY-1 BOARD
Q028 2SA844
Q029 2SA844
Q033 2SA844
Q036 2SC403SP
Q034 2SC403SP
Q035 2SC403SP
Q037 2SC403SP
DE EMPHASIS
EXPAND
PRE EXPAND
D010, D011 1SS119 SW
D005 MC931
D004 1SS119
Q018 2SC403SP
Q015 2SA844
Q013 2SC403SP
Q011 2SA844
Q010 2SC403SP
Q008 2SA844
PRE EMPHASIS
DARK CLIP
WHITE CLIP
CARRIER SET
COMPRESS
HALF WHITE SHIFT
D002, 003 1SS119
D001 1SS119
Q019 2SC403SP
Q017 2SA844
Q016 2SC403SP
Q014 2SC403SP
Q012 2SC403SP
Q009 2SC403SP
ID GATE
SW 9V
PB 12V
REC P
GND
RF SWP
PB 9V
CTL
REC C IN
PB C OUT
GND
REC Y IN
PB Y OUT
MC
SW 12V
CN002 (WHT)
CN001 (WHT)
REC C OUT
PB C IN
REC Y OUT
PB Y IN
MC + PCM
Q016 2SC2785 SWITCH
Q021 2SC2785 BUFFER
Q020 2SC2785 SWITCH
Q001 2SC2785 SWITCH

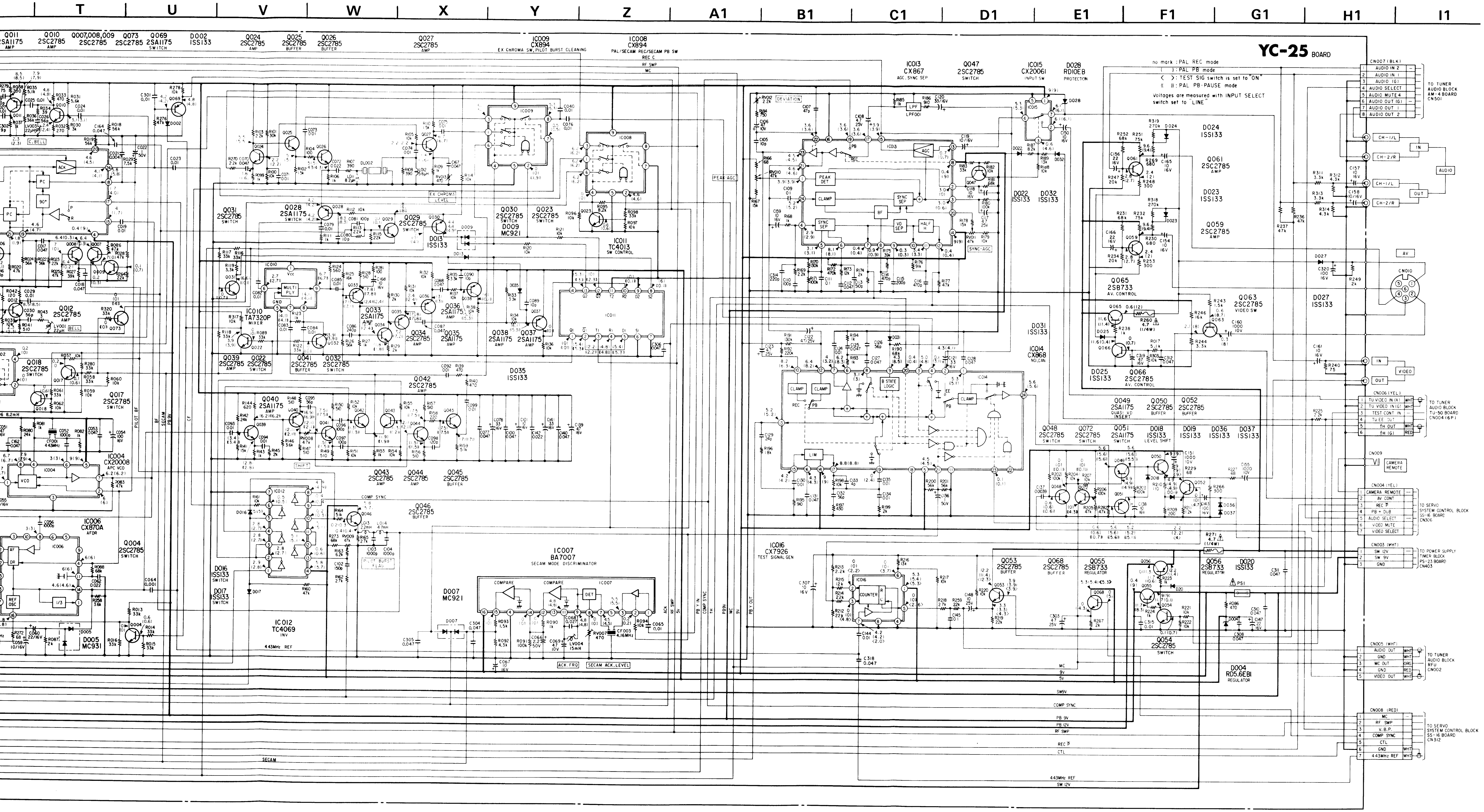
- All resistors are in ohms, 1/6W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted. 50V or less are not indicated except for electrolytic capacitors.
- All variable and semi-fixed resistors have characteristic curve B, unless otherwise noted.
- : Nonflammable resistor
- : Fusible resistor
- △ : Internal component.
- —— : B + bus.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.

The voltage value is measured using a digital tester (10MΩ).

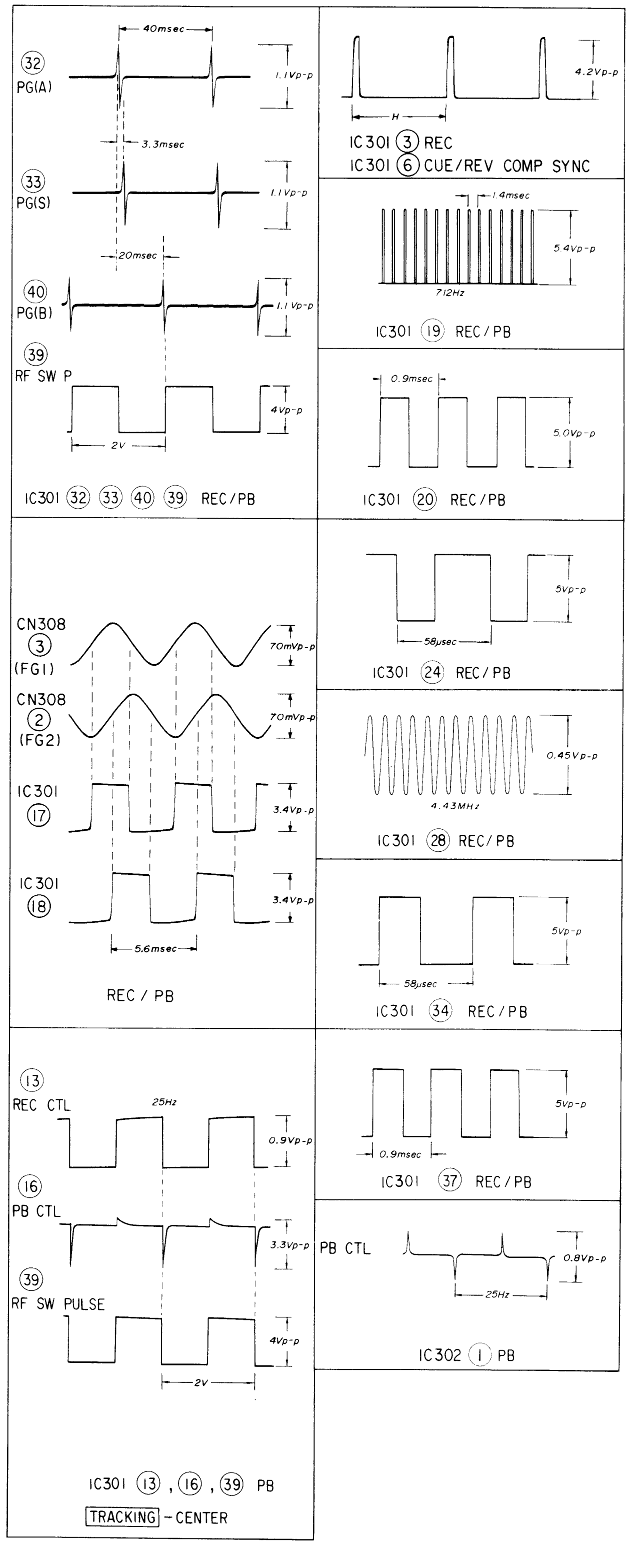
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

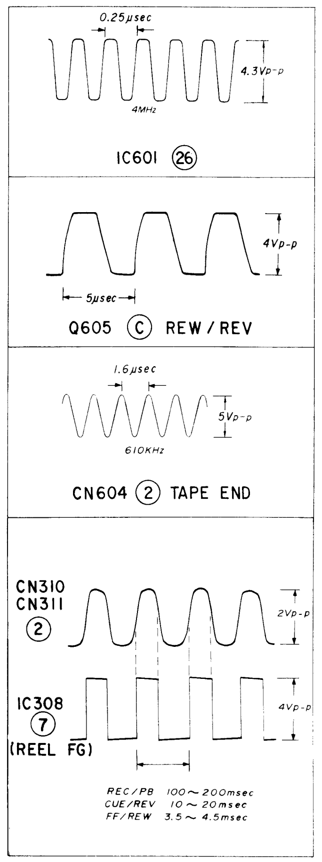

K
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z
IC004 CX-135 NOISE CANCEL
Q023 2SC403SP
Q024 2SC403SP
Q025 2SA844 AMP
Q033 2SA844
Q036 2SC403SP
Q034 2SC403SP
Q035 2SC403SP
Q037 2SC403SP
DE EMPHASIS
PRE EMPHASIS
D010,D011 1SS119
Q013 2SC403SP
Q011 2SA844
Q010 2SC403SP
Q008 2SA844
D002,003 1SS119
D001 1SS119
Q012 2SC403SP
Q009 2SC403SP
Q001 2SC2785 SWITCH
Q002 2SC2785 SWITCH
Q003 2SC2785 SWITCH
D001 1SS133 TEMP COMP
IC001 CX869A ACC
Q011 2SA1175 AMP
Q010 2SC2785 AMP
Q007,008,009 2SC2785
Q073 2SC2785
Q069 2SA1175 SWITCH
D002 1SS133
Q024 2SC2785 AMP
Q025 2SC2785 BUFFER
Q026 2SC2785 BUFFER
Q027 2SC2785 AMP
IC009 CX894 EX CHROMA SW, PILOT BURST CLEANING
IC008 CX894 PAL/SECAM REC/SECAM PB SW
Q016 2SC2785 SWITCH
Q013 2SC403SP AMP
Q014 2SC403SP AMP
Q015 2SC403SP BUFFER
Q006 2SC403SP AMP
PILOT BURST LEVEL
IC002 CX894 PAL/SECAM SW, PILOT BURST INSERT
Q012 2SC2785 AMP
Q018 2SC2785 SWITCH
Q017 2SC2785 SWITCH
Q019 2SC2785 SWITCH
IC003 CX882 AFC,VCO,CONV
Q021 2SC2785 BUFFER
Q020 2SC2785 SWITCH
IC004 CX20008 APC VCO
IC005 CX7945 AFC COUNTER
IC006 CX870A AFDR
Q004 2SC2785 SWITCH
D005 MC931
Q031 2SC2785 SWITCH
Q028 2SA1175 SWITCH
Q029 2SC2785 SWITCH
D013 1SS133
Q030 2SC2785 SWITCH
D009 MC921
Q023 2SC2785 SWITCH
IC011 TC4013 SW CONTROL
IC010 TA7320P MIXER
Q033 2SA1175 AMP
Q036 2SA1175 AMP
Q034 2SC2785 AMP
Q035 2SA1175 AMP
Q038 2SA1175 AMP
Q037 2SA1175 AMP
Q039 2SC2785 AMP
Q022 2SC2785 SWITCH
Q041 2SC2785 BUFFER
Q032 2SC2785 SWITCH
D035 1SS133
Q042 2SC2785 AMP
Q040 2SA1175 AMP
Q043 2SC2785 AMP
Q044 2SC2785 AMP
Q045 2SC2785 BUFFER
Q046 2SC2785 BUFFER
D016 1SS133 SWITCH
D017 1SS133 SWITCH
IC012 TC4069 INV
IC007 BA7007 SECAM MODE DISCRIMINATOR
D007 MC921
COMPARE
ACK FRQ
SECAM ACK.LEVEL
CN002 (WHT)
ID GATE
SW 9V
PB12V
REC P
GND
RF SWP
PB 9V
CTL
CN001 (WHT)
REC C OUT
PB C IN
GND
REC Y OUT
PB Y IN
MC + PCM
SW 12V
5V
REG 9V
FH
ACK
PB9V
PB12V
RF SWP
REC P
CTL
REC Y OUT
SECAM
PB Y IN
MC
SW 12V


T
U
V
W
X
Y
Z
A1
B1
C1
D1
E1
F1
G1
H1
I1
YC-25 BOARD
no mark : PAL REC mode
( ) : PAL PB mode
< > : TEST SIG switch is set to "ON"
(( )) : PAL PB-PAUSE mode
Voltages are measured with INPUT SELECT switch set to "LINE"
IC009 CX894 EX CHROMA SW, PILOT BURST CLEANING
IC008 CX894 PAL/SECAM REC/SECAM PB SW
IC013 CX867 AGC, SYNC SEP
Q047 2SC2785 SWITCH
IC015 CX20061 INPUT SW
D028 RD10EB PROTECTION
IC010 TA7320P MIXER
IC011 TC4013 SW CONTROL
IC014 CX868 NOI.CAN
IC004 CX20008 APC VCO
IC006 CX870A AFDR
IC007 BA7007 SECAM MODE DISCRIMINATOR
IC012 TC4069 INV
IC016 CX7926 TEST SIGNAL GEN
D005 MC931
D007 MC921
D009 MC921
Q065 2SB733 AV. CONTROL
Q066 2SC2785 AV. CONTROL
Q063 2SC2785 VIDEO SW
Q056 2SB733 REGULATOR
Q054 2SC2785 SWITCH
D004 RD5.6EB1 REGULATOR
CN007 (BLK)
AUDIO IN 2
AUDIO IN 1
AUDIO (G)
AUDIO SELECT
AUDIO MUTE 4
AUDIO OUT (G)
AUDIO OUT 1
AUDIO OUT 2
TO TUNER AUDIO BLOCK AM-48 BOARD CN501
CH-1/L
CH-2/R
IN
OUT
AUDIO
AV
CN010
CN006 (YEL)
TU VIDEO IN (X)
TU VIDEO IN (G)
TEST CONT IN
TU EE OUT
fH OUT
fH (G)
TO TUNER AUDIO BLOCK TU-50 BOARD CN004 (6P)
CN009
CAMERA REMOTE
CN004 (YEL)
CAMERA REMOTE
AV CONT
REC P
PB + DUB
AUDIO SELECT
VIDEO MUTE
VIDEO SELECT
TO SERVO SYSTEM CONTROL BLOCK SS-16 BOARD CN306
CN003 (WHT)
SW 12V
SW 9V
GND
TO POWER SUPPLY TIMER BLOCK PS-23 BOARD CN403
CN005 (WHT)
AUDIO OUT
GND
MC OUT
GND
VIDEO OUT
TO TUNER AUDIO BLOCK RFU CN002
CN008 (RED)
MC
RF SWP
V.B.P.
COMP SYNC
CTL
GND
4.43MHz REF
TO SERVO SYSTEM CONTROL BLOCK SS-16 BOARD CN312
SECAM
4.43MHz REF
SW 12V
MC
9V
5V
SW9V
COMP SYNC
PB 9V
PB 12V
RF SWP
REC P
CTL

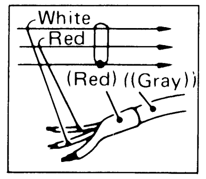
SS-16 (SERVO) BOARD



SS-16 (SYSTEM CONTROL) BOARD



- Color code of sleeving over the end of the jacket.

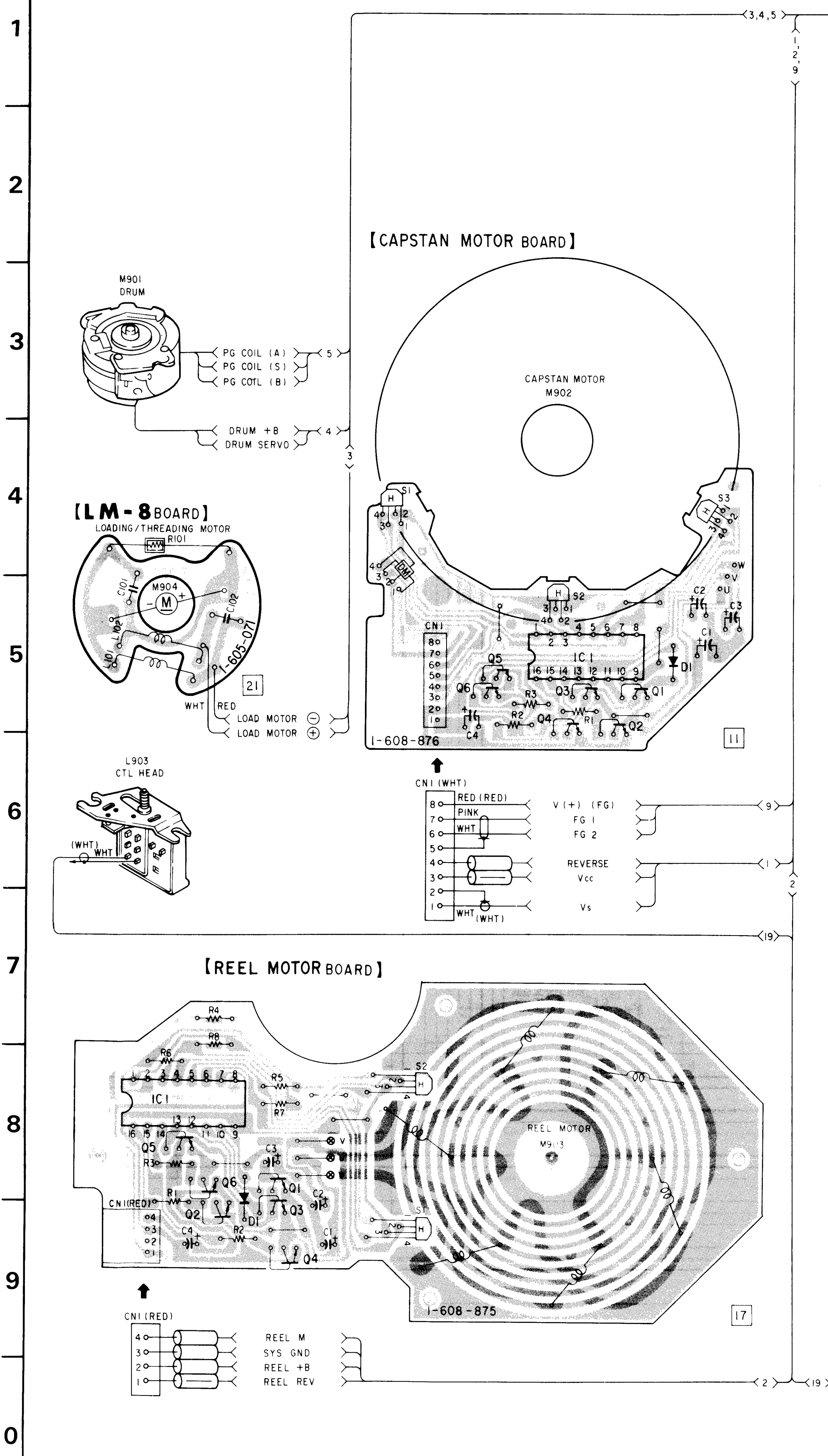


White
Red
(Red) ((Gray))

- ○— indicates a lead wire mounted on the component side.
- ●— indicates a lead wire mounted on the printed side.
- ▨ Soldering side
- Component side
- B + pattern

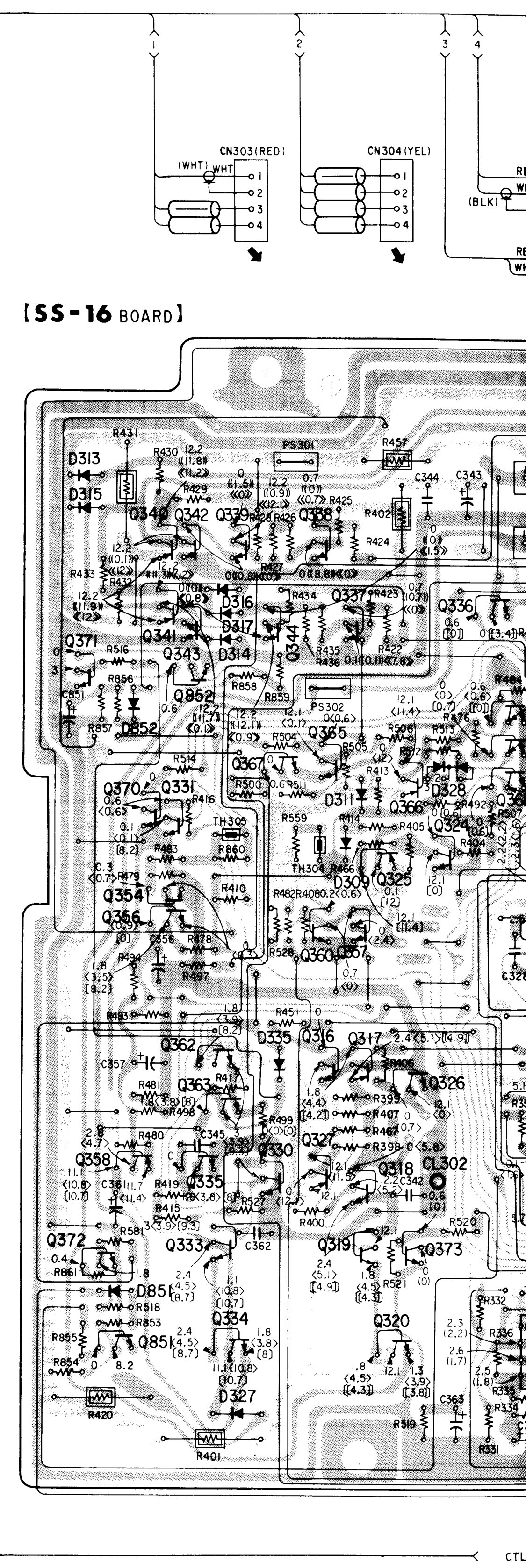
SS-16 (SERVO/SYSTEM CONTROL)		FU-15	(FUNCTION SWITCH)	RD-6	(ROTATION DETECTOR)	RD-7	(ROTATION DETECTOR)	LM-8	(NOISE FILTER)
A	B	C	D	E	F	G	H	I	J

– Ref. No. SS-16 BOARD: 3000 seires, FU-15 BOARD: 7000 series, RD-6 BOARD: 100 series, RD-7 BOARD: 200 series, LM-8 BOARD: 7000 series, REELMOTOR BOARD: 300 series, CS-3 BOARD: 70



1
2
3
4
5
6
7
8
9
10
【CAPSTAN MOTOR BOARD】
M901 DRUM
PG COIL (A)
PG COIL (S)
PG COIL (B)
DRUM +B
DRUM SERVO
CAPSTAN MOTOR M902
【LM-8 BOARD】
LOADING/THREADING MOTOR
M904
WHT
RED
LOAD MOTOR ⊖
LOAD MOTOR ⊕
1-605-071
21
1-608-876
11
IC1
CN1 (WHT)
RED (RED)
PINK
WHT
V(+) (FG)
FG 1
FG 2
REVERSE
Vcc
Vs
WHT (WHT)
L903 CTL HEAD
(WHT)
WHT
【REEL MOTOR BOARD】
REEL MOTOR M903
1-608-875
17
CN1 (RED)
REEL M
SYS GND
REEL +B
REEL REV

Q · IC	D	TP · RV
	313	
	315	
349,346		
339		
302,303,352		
340,342,338 347,348		
314		
	613	
313		
341,344,337 616	316	
343 336 604,614	317 301	406
321 312	314 302	RV302
311,IC308	612,610	
371, 852		CL303
345 615		404
310 605,613		402
355 309 332	326	403
359	852	RV309,RV304
367,365	617	RV301
301		
366 620 618	607	
IC301		
368 608 606	328	
607,617		
307 609,612	311 616	
331		
370, 331		
324		405
		RV303
	309 614	
IC303		
325		
611		
354 IC304 610,619	330 608	410 401
356,360,357	329 308	
		RV310
		409
364	304	
		RV308,RV307
IC305 636	335	605
362,316,317		
326		407,601
363		
327 315		
IC307 IC306 IC601		
358,335,330,318		
		CL302
322		
372 627		CL301
333 319 373		
	339,340	
	851	
	306	
851 IC302		
	341	
334,320,306,305		
626		
	327 325	
624,623,631,630,629,628		
304,622,621,625,633,634,632		



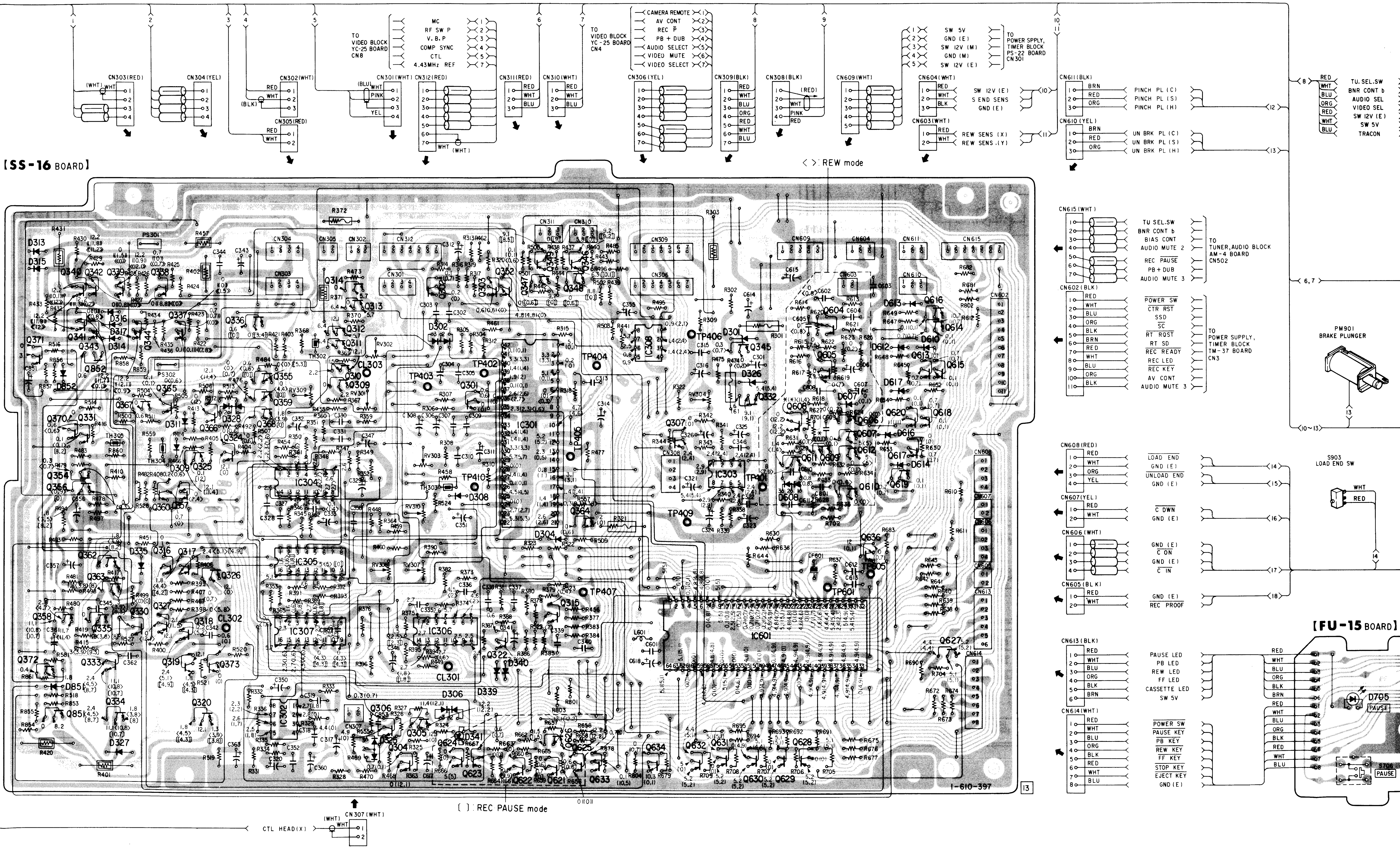
CN303 (RED)
(WHT)
WHT
CN304 (YEL)
(BLK)
【SS-16 BOARD】
PS301
R431
D313
D315
Q340
Q342
Q339
Q338
Q336
Q341
Q343
D314
D316
D317
Q337
Q371
Q852
D852
Q365
Q370
Q331
Q367
D311
Q366
Q328
Q354
Q356
D309
Q325
Q360
Q357
Q362
Q363
D335
Q316
Q317
Q326
Q358
Q335
Q330
Q327
Q318
CL302
Q372
Q333
Q319
Q373
Q334
Q320
D851
Q851
D327
R401
R420
CTL

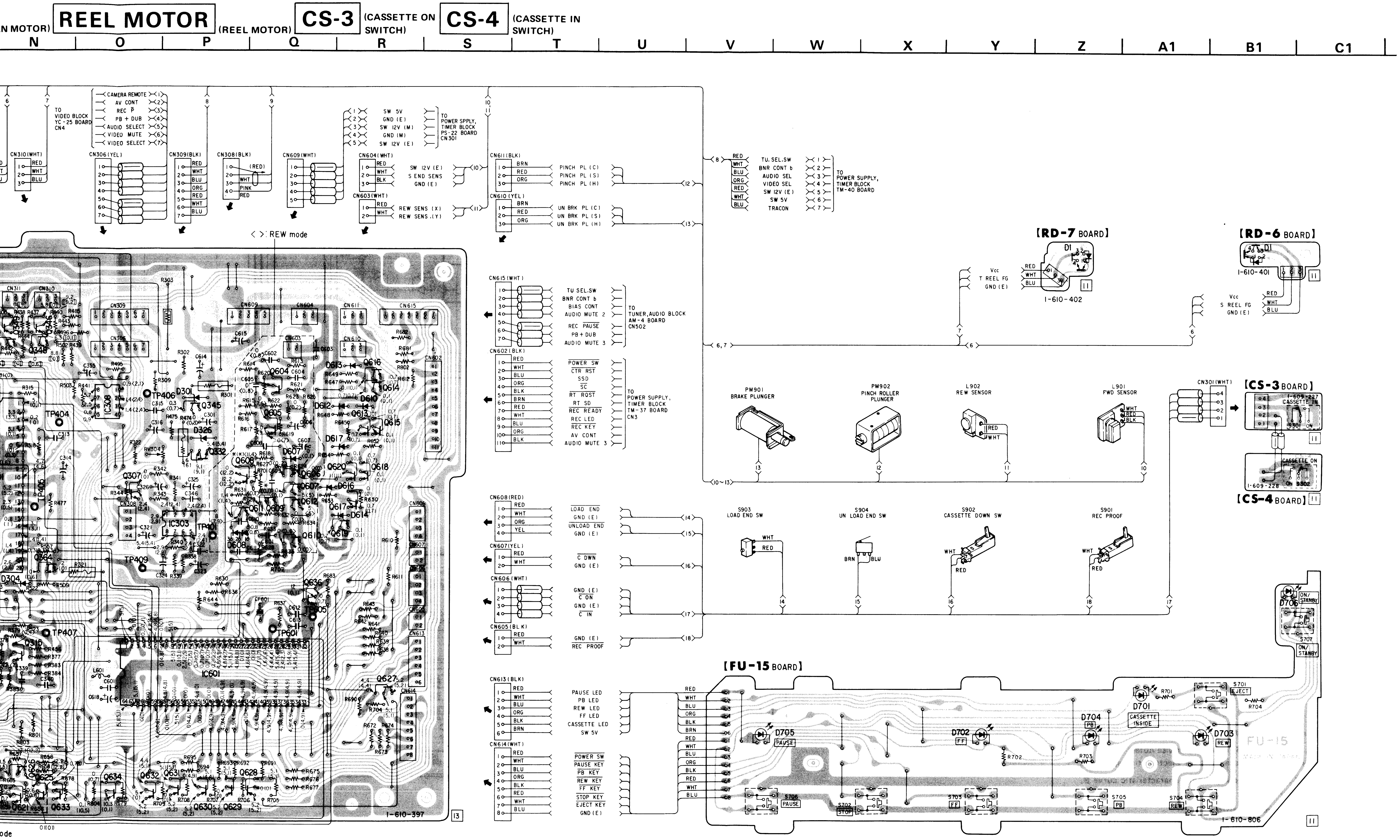
ETECTOR) **RD-7** (ROTATION DETECTOR) **LM-8** (NOISE FILTER) **CAPSTAN MOTOR** (CAPSTAN MOTOR) **REEL MOTOR** (REEL MOTOR) **CS-3** (CASSETTE ON SWITCH) **CS-4** (CASSETTE IN SWITCH)

G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V

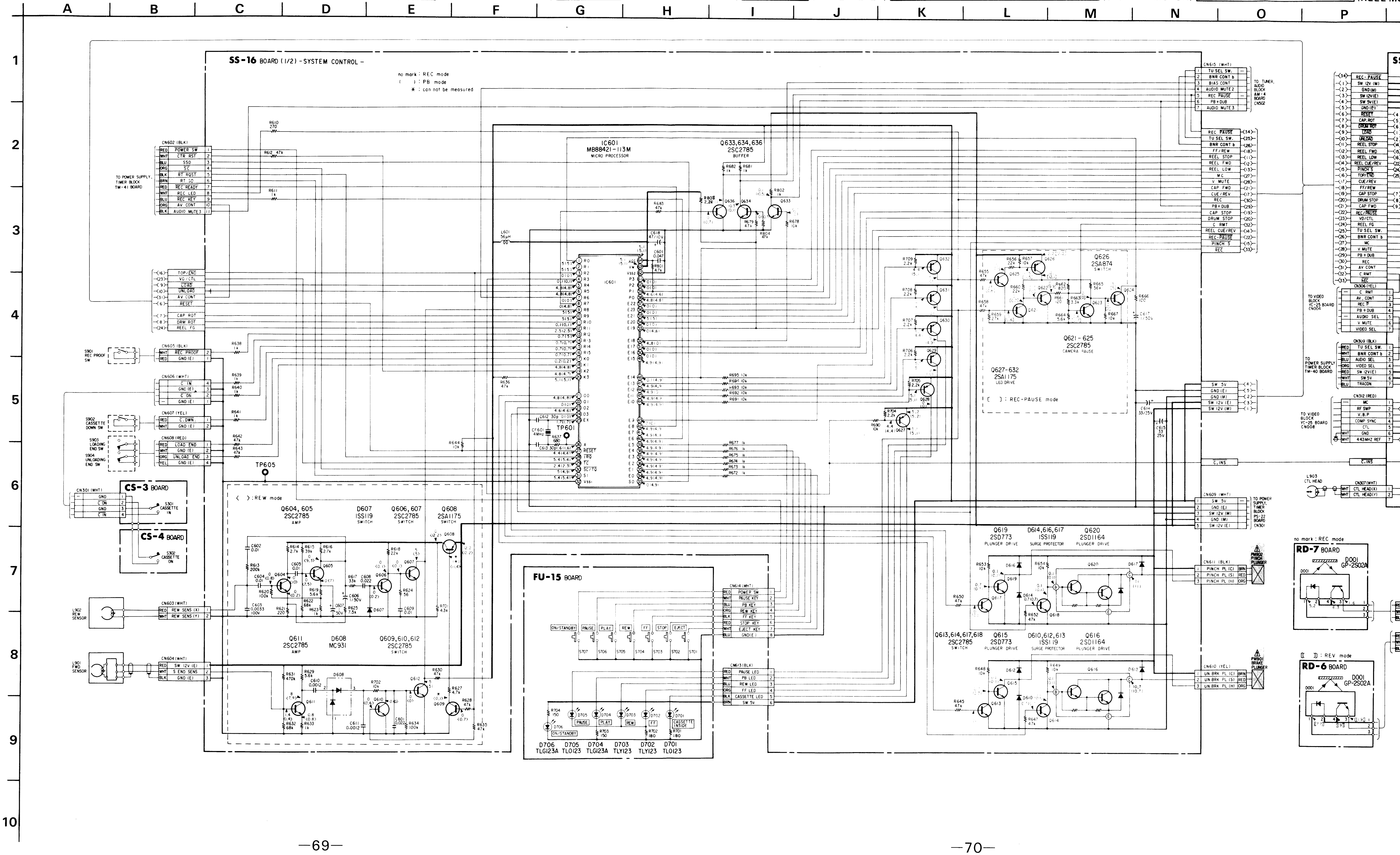
200 series, LM-8 BOARD: 7000 series, REELMOTOR BOARD: 300 series, CS-3 BOARD: 7000 series, CS-4 BOARD: 4000 series —

· IC	D	TP · RV
	313	
349,346	315	
2,303,352 347,348		
	613	
616 604,614	316 317 301	406
2 1,IC308	314 302 612,610	RV302
345 615 605,613		CL303 404 402
310 309 332	326 852 617	403 RV309,RV304 RV301
301 C301 620 618 608 606	607 328	
307 607,617 609,612	311 616	
		405 RV303
IC303 611 610,619	309 614 330 608 329 308	410 401
		RV310 409
364	304	
5 636	335	RV308,RV307 605
		407,601
315 C306 IC601 8		
322		CL302
627		CL301
373		
	339,340 851	
	306	
	341	
,305 626 23,631,630,629,628 ,625,633,634,632	327 325	


[SS-16 BOARD]
TO VIDEO BLOCK YC-25 BOARD CN8
MC
RF SW P
V.B.P
COMP SYNC
CTL
4.43MHz REF
TO VIDEO BLOCK YC-25 BOARD CN4
CAMERA REMOTE
AV CONT
REC P
PB + DUB
AUDIO SELECT
VIDEO MUTE
VIDEO SELECT
SW 5V
GND (E)
SW 12V (M)
GND (M)
SW 12V (E)
TO POWER SPPLY, TIMER BLOCK PS-22 BOARD CN301
CN303 (RED)
CN304 (YEL)
CN302 (WHT)
CN305 (RED)
CN301 (WHT)
CN312 (RED)
CN311 (RED)
CN310 (WHT)
CN306 (YEL)
CN309 (BLK)
CN308 (BLK)
CN609 (WHT)
CN604 (WHT)
CN603 (WHT)
CN611 (BLK)
CN610 (YEL)
SW 12V (E)
S END SENS
GND (E)
REW SENS (X)
REW SENS (Y)
PINCH PL (C)
PINCH PL (S)
PINCH PL (H)
UN BRK PL (C)
UN BRK PL (S)
UN BRK PL (H)
TU. SEL. SW
BNR CONT b
AUDIO SEL
VIDEO SEL
SW 12V (E)
SW 5V
TRACON
< >: REW mode
CN615 (WHT)
TU SEL. SW
BNR CONT b
BIAS CONT
AUDIO MUTE 2
REC PAUSE
PB + DUB
AUDIO MUTE 3
TO TUNER, AUDIO BLOCK AM-4 BOARD CN502
CN602 (BLK)
POWER SW
CTR RST
SSD
SC
RT RQST
RT SD
REC READY
REC LED
REC KEY
AV CONT
AUDIO MUTE 3
TO POWER SUPPLY, TIMER BLOCK TM-37 BOARD CN3
PM901 BRAKE PLUNGER
CN608 (RED)
LOAD END
GND (E)
UNLOAD END
GND (E)
S903 LOAD END SW
CN607 (YEL)
C DWN
GND (E)
CN606 (WHT)
GND (E)
C ON
GND (E)
C IN
CN605 (BLK)
GND (E)
REC PROOF
CN613 (BLK)
PAUSE LED
PB LED
REW LED
FF LED
CASSETTE LED
SW 5V
CN614 (WHT)
POWER SW
PAUSE KEY
PB KEY
REW KEY
FF KEY
STOP KEY
EJECT KEY
GND (E)
[FU-15 BOARD]
D705
PAUSE
S705
IC301
IC302
IC303
IC304
IC305
IC306
IC307
IC308
IC601
TP401
TP402
TP403
TP404
TP405
TP406
TP407
TP409
TP410
TP601
CL301
CL302
CL303
R372
R303
PS301
PS302
[ ]: REC PAUSE mode
1-610-397
CN307 (WHT)
CTL HEAD (X)


N MOTOR)
REEL MOTOR
(REEL MOTOR)
CS-3
(CASSETTE ON SWITCH)
CS-4
(CASSETTE IN SWITCH)
N O P Q R S T U V W X Y Z A1 B1 C1
TO VIDEO BLOCK YC-25 BOARD CN4
CAMERA REMOTE
AV CONT
REC P
PB + DUB
AUDIO SELECT
VIDEO MUTE
VIDEO SELECT
SW 5V
GND (E)
SW 12V (M)
GND (M)
SW 12V (E)
TO POWER SPPLY, TIMER BLOCK PS-22 BOARD CN301
CN310(WHT)
CN306(YEL)
CN309(BLK)
CN308(BLK)
CN609(WHT)
CN604(WHT)
CN603(WHT)
CN611(BLK)
CN610(YEL)
SW 12V (E)
S END SENS
GND (E)
REW SENS (X)
REW SENS (Y)
PINCH PL (C)
PINCH PL (S)
PINCH PL (H)
UN BRK PL (C)
UN BRK PL (S)
UN BRK PL (H)
TU. SEL.SW
BNR CONT b
AUDIO SEL
VIDEO SEL
SW 12V (E)
SW 5V
TRACON
TO POWER SUPPLY, TIMER BLOCK TM-40 BOARD
< >: REW mode
CN615(WHT)
TU SEL.SW
BNR CONT b
BIAS CONT
AUDIO MUTE 2
REC PAUSE
PB + DUB
AUDIO MUTE 3
TO TUNER,AUDIO BLOCK AM-4 BOARD CN502
CN602(BLK)
POWER SW
CTR RST
SSD
SC
RT RDST
RT SD
REC READY
REC LED
REC KEY
AV CONT
AUDIO MUTE 3
TO POWER SUPPLY, TIMER BLOCK TM-37 BOARD CN3
[RD-7 BOARD]
D1
Vcc
T REEL FG
GND (E)
1-610-402
[RD-6 BOARD]
1-610-401
S REEL FG
PM901 BRAKE PLUNGER
PM902 PINCH ROLLER PLUNGER
L902 REW SENSOR
L901 FWD SENSOR
CN301(WHT)
[CS-3 BOARD]
1-609-227
CASSETTE IN
S301
ON
CASSETTE ON
1-609-228
S302
[CS-4 BOARD]
CN608(RED)
LOAD END
GND (E)
UNLOAD END
GND (E)
CN607(YEL)
C DWN
GND (E)
CN606(WHT)
GND (E)
C ON
GND (E)
C IN
CN605(BLK)
GND (E)
REC PROOF
S903 LOAD END SW
S904 UN LOAD END SW
S902 CASSETTE DOWN SW
S901 REC PROOF
CN613(BLK)
PAUSE LED
PB LED
REW LED
FF LED
CASSETTE LED
SW 5V
CN614(WHT)
POWER SW
PAUSE KEY
PB KEY
REW KEY
FF KEY
STOP KEY
EJECT KEY
GND (E)
[FU-15 BOARD]
D705 PAUSE
D702 FF
D704 PB
D701 CASSETTE INSIDE
D703 REW
D706 ON/STANBY
S707 ON/STANBY
S701 EJECT
S706 PAUSE
S702 STOP
S703 FF
S705 PB
S704 REW
1-610-806
IC601
IC303
IC308
TP401
TP404
TP406
TP407
TP409
TP601
TP605
1-610-397
ode

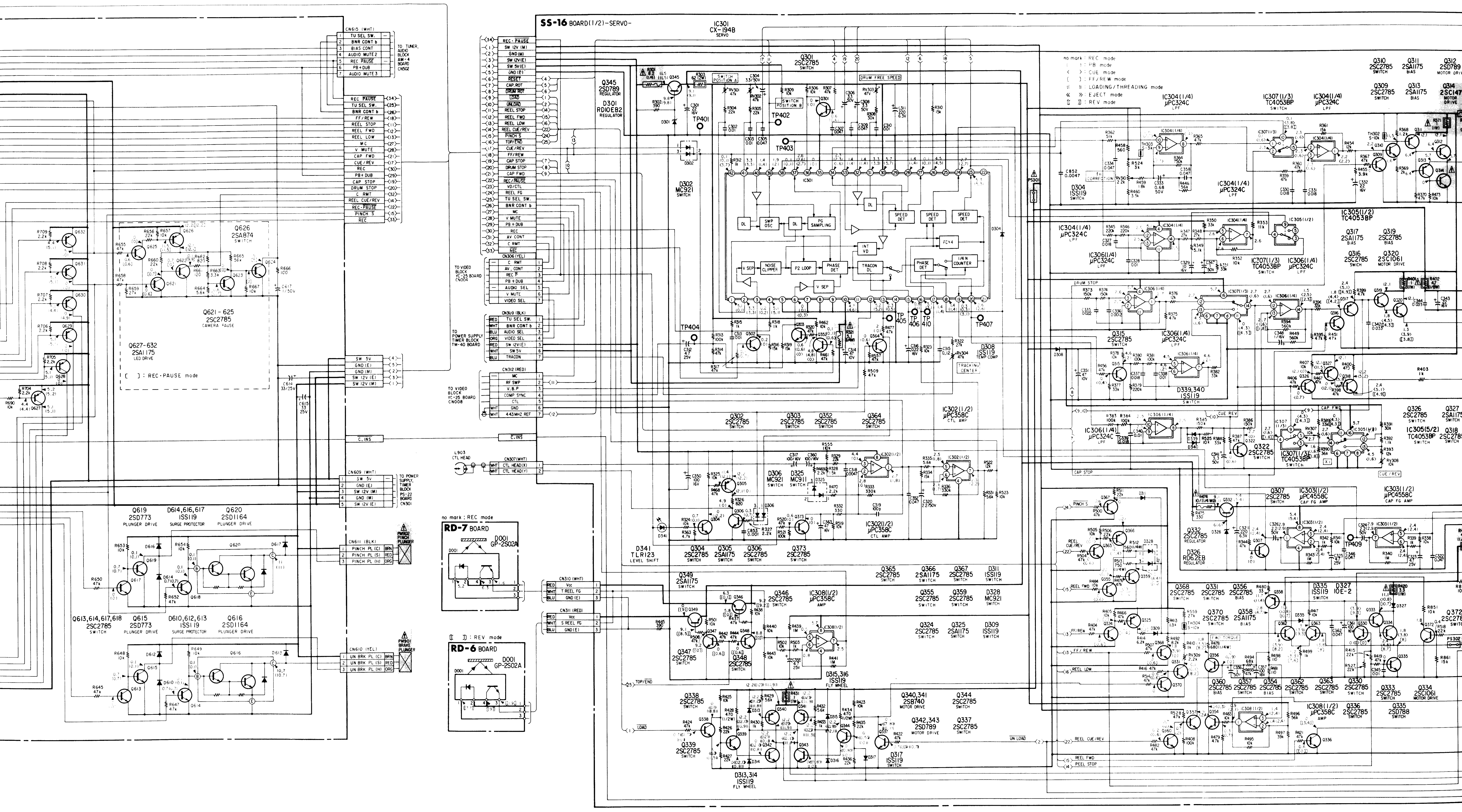
SS-16 (SERVO/SYSTEM CONTROL) **FU-15** (FUNCTION SWITCH) **RD-6** (ROTATION DETECTOR) **RD-7** (ROTATION DETECTOR) **LM-8** (NOISE FILTER) **CAPSTAN MOTOR** (CAPSTAN MOTOR) **REEL MOTOR** (REEL MO



A B C D E F G H I J K L M N O P
1 2 3 4 5 6 7 8 9 10
SS-16 BOARD (1/2) - SYSTEM CONTROL -
no mark : REC mode
( ) : PB mode
* : can not be measured
IC601
MB88421-113M
MICRO PROCESSOR
Q633,634,636
2SC2785
BUFFER
CN602 (BLK)
POWER SW
CTR RST
SSD
SC
RT RQST
RT SO
REC READY
REC LED
REC KEY
AV CONT
AUDIO MUTE 3
TO POWER SUPPLY, TIMER BLOCK TM-41 BOARD
TOP/END
VD/CTL
LOAD
UNLOAD
AV CONT
RESET
CAP ROT
DRM ROT
REEL FG
S901 REC PROOF SW
CN605 (BLK)
REC PROOF
CN606 (WHT)
C IN
C ON
CN607 (YEL)
C.DWN.
S902 CASSETTE DOWN SW
S903 LOADING END SW
S904 UNLOADING END SW
CN608 (RED)
LOAD END
UNLOAD END
TP605
TP601
CN301 (WHT)
CS-3 BOARD
S301 CASSETTE IN
CS-4 BOARD
S302 CASSETTE ON
L902 REW SENSOR
CN603 (WHT)
REW SENS (X)
REW SENS (Y)
L901 FWD SENSOR
CN604 (WHT)
SW 12V (E)
S END SENS
GND (E)
( ) : REW mode
Q604, 605
2SC2785
AMP
D607
1SS119
SWITCH
Q606, 607
2SC2785
SWITCH
Q608
2SA1175
SWITCH
Q611
2SC2785
AMP
D608
MC931
Q609,610,612
2SC2785
SWITCH
FU-15 BOARD
ON/STANDBY
PAUSE
PLAY
REW
FF
STOP
EJECT
S707 S706 S705 S704 S703 S702 S701
CN614 (WHT)
POWER SW
PAUSE KEY
PB KEY
REW KEY
FF KEY
STOP KEY
EJECT KEY
CN613 (BLK)
PAUSE LED
PB LED
REW LED
FF LED
CASSETTE LED
SW 5V
CASSETTE INSIDE
D706 TLG123A
D705 TLO123
D704 TLG123A
D703 TLY123
D702 TLY123
D701 TLO123
CN615 (WHT)
TU SEL SW.
BNR CONT b
BIAS CONT
AUDIO MUTE 2
REC PAUSE
PB+DUB
AUDIO MUTE 3
TO TUNER, AUDIO BLOCK AM-4 BOARD CN502
Q626
2SA874
SWITCH
Q621-625
2SC2785
CAMERA PAUSE
Q627-632
2SA1175
LED DRIVE
[ ] : REC·PAUSE mode
Q619
2SD773
PLUNGER DRIVE
D614,616,617
1SS119
SURGE PROTECTOR
Q620
2SD1164
PLUNGER DRIVE
Q613,614,617,618
2SC2785
SWITCH
Q615
2SD773
PLUNGER DRIVE
D610,612,613
1SS119
SURGE PROTECTOR
Q616
2SD1164
PLUNGER DRIVE
CN611 (BLK)
PINCH PL (C)
PINCH PL (S)
PINCH PL (H)
PM902 PINCH PLUNGER
CN610 (YEL)
UN BRK PL (C)
UN BRK PL (S)
UN BRK PL (H)
PM901 BRAKE PLUNGER
CN609 (WHT)
SW 5V
GND (E)
SW 12V (M)
GND (M)
SW 12V (E)
TO POWER SUPPLY, TIMER BLOCK PS-22 BOARD CN301
C.INS
TO VIDEO BLOCK YC-25 BOARD CN004
CN306 (YEL)
C RMT
AV CONT
REC P
PB+DUB
AUDIO SEL
V MUTE
VIDEO SEL
TO POWER SUPPLY TIMER BLOCK TM-40 BOARD
CN309 (BLK)
CN312 (RED)
MC
RF SWP
V.B.P
COMP SYNC
CTL
4.43MHz REF
TO VIDEO BLOCK YC-25 BOARD CN008
L903 CTL HEAD
CN307 (WHT)
CTL HEAD (X)
CTL HEAD (Y)
no mark : REC mode
RD-7 BOARD
D001 GP-2S02A
[ ] : REV mode
RD-6 BOARD
D001 GP-2S02A

CAPSTAN MOTOR (CAPSTAN MOTOR) **REEL MOTOR** (REEL MOTOR) **CS-3** (CASSETTE ON SWITCH) **CS-4** (CASSETTE IN SWITCH)

– Ref. No. SS-16 BOARD: 3000 seires, FU-15 BOARD: 7000 series, RD-6 BOARD: 100 series, RD-7 BOARD: 200 series, LM-8 BOA


SS-16 BOARD(1/2)-SERVO-
IC301 CX-194B SERVO
Q301 2SC2785 SWITCH
Q345 2SD789 REGULATOR
D301 RD10EB2 REGULATOR
D302 MC921 SWITCH
TP401
TP402
TP403
TP404
TP405
TP406
TP407
TP409
TP410
DRUM FREE SPEED
SWITCH POSITION A
SWITCH POSITION B
CN615 (WHT)
TO TUNER, AUDIO BLOCK AM-4 BOARD CN502
TO VIDEO BLOCK YC-25 BOARD CN004
TO POWER SUPPLY TIMER BLOCK TM-40 BOARD
TO VIDEO BLOCK YC-25 BOARD CN008
TO POWER SUPPLY, TIMER BLOCK PS-22 BOARD CN301
CN306 (YEL)
CN309 (BLK)
CN312 (RED)
CN307 (WHT)
CN609 (WHT)
CN611 (BLK)
CN610 (YEL)
CN310 (WHT)
CN311 (RED)
L903 CTL HEAD
Q626 2SA874 SWITCH
Q621 - 625 2SC2785 CAMERA PAUSE
Q627 - 632 2SA1175 LED DRIVE
[ ] : REC·PAUSE mode
Q619 2SD773 PLUNGER DRIVE
D614,616,617 1SS119 SURGE PROTECTOR
Q620 2SD1164 PLUNGER DRIVE
Q613,614,617,618 2SC2785 SWITCH
Q615 2SD773 PLUNGER DRIVE
D610,612,613 1SS119 SURGE PROTECTOR
Q616 2SD1164 PLUNGER DRIVE
PM902 PINCH PLUNGER
PM901 BRAKE PLUNGER
no mark : REC mode
RD-7 BOARD
D001 GP-2S02A
[ ] : REV mode
RD-6 BOARD
D001 GP-2S02A
Q302 2SC2785 SWITCH
Q303 2SC2785 SWITCH
Q352 2SC2785 SWITCH
Q364 2SC2785 SWITCH
IC302(1/2) μPC358C CTL AMP
D308 1SS119 TEMP COMP
TRACKING CENTER
D306 MC921 SWITCH
D325 MC911 SWITCH
D341 TLR123 LEVEL SHIFT
Q304 2SC2785 SWITCH
Q305 2SA1175 SWITCH
Q306 2SC2785 SWITCH
Q373 2SC2785 SWITCH
Q349 2SA1175 SWITCH
Q346 2SC2785 SWITCH
IC308(1/2) μPC358C AMP
Q347 2SC2785 SWITCH
Q348 2SC2785 SWITCH
D315,316 1SS119 FLY WHEEL
Q338 2SC2785 SWITCH
Q339 2SC2785 SWITCH
D313,314 1SS119 FLY WHEEL
Q340,341 2SB740 MOTOR DRIVE
Q342,343 2SD789 MOTOR DRIVE
Q344 2SC2785 SWITCH
Q337 2SC2785 SWITCH
D317 1SS119 SWITCH
Q365 2SC2785 SWITCH
Q366 2SA1175 SWITCH
Q367 2SC2785 SWITCH
D311 1SS119 SWITCH
Q355 2SC2785 SWITCH
Q359 2SC2785 SWITCH
D328 MC921 SWITCH
Q324 2SC2785 SWITCH
Q325 2SA1175 SWITCH
D309 1SS119 SWITCH
no mark : REC mode
( ) : PB mode
< > : CUE mode
{ } : FF/REW mode
[[ ]] : LOADING/THREADING mode
<< >> : EJECT mode
[ ] : REV mode
IC304(1/4) μPC324C LPF
IC307(1/3) TC4053BP SWITCH
D304 1SS119 SWITCH
IC305(1/2) TC4053BP
IC306(1/4) μPC324C LPF
Q315 2SC2785 SWITCH
D339,340 1SS119 SWITCH
Q322 2SC2785 SWITCH
Q307 2SC2785 SWITCH
IC303(1/2) μPC4558C CAP FG AMP
Q332 2SC2785 REGULATOR
D326 RD6.2EB REGULATOR
Q368 2SC2785 SWITCH
Q331 2SC2785 SWITCH
Q356 2SC2785 BIAS
D335 1SS119 SWITCH
D327 10E-2
Q370 2SC2785 SWITCH
Q358 2SA1175 BIAS
Q360 2SC2785 BIAS
Q357 2SC2785 SWITCH
Q354 2SC2785 BIAS
Q362 2SC2785 SWITCH
Q363 2SC2785 SWITCH
Q330 2SC2785 SWITCH
Q333 2SC2785 SWITCH
Q334 2SC1061 MOTOR DRIVE
IC308(1/2) μPC358C AMP
Q336 2SC2785 SWITCH
Q335 2SD788 SWITCH
Q310 2SC2785 SWITCH
Q311 2SA1175 BIAS
Q312 2SD789 MOTOR DRIVE
Q309 2SC2785 SWITCH
Q313 2SA1175 BIAS
Q314 2SC147 MOTOR DRIVE
Q317 2SA1175 BIAS
Q319 2SC2785 BIAS
Q316 2SC2785 SWITCH
Q320 2SC1061 MOTOR DRIVE
Q326 2SC2785 SWITCH
Q327 2SA1175
IC305(5/2) TC4053BP SWITCH
Q318 2SC2785
IC303(1/2) μPC4558C CAP FG AMP
CAP STOP
CAP FWD
CUE REV
CUE/REV
DRUM STOP
PINCH S
REEL CUE/REV
REEL FWD
FF/REW
REEL LOW
TOP/END
LOAD
UN LOAD
REEL STOP
CORRECTION
PS301
PS302

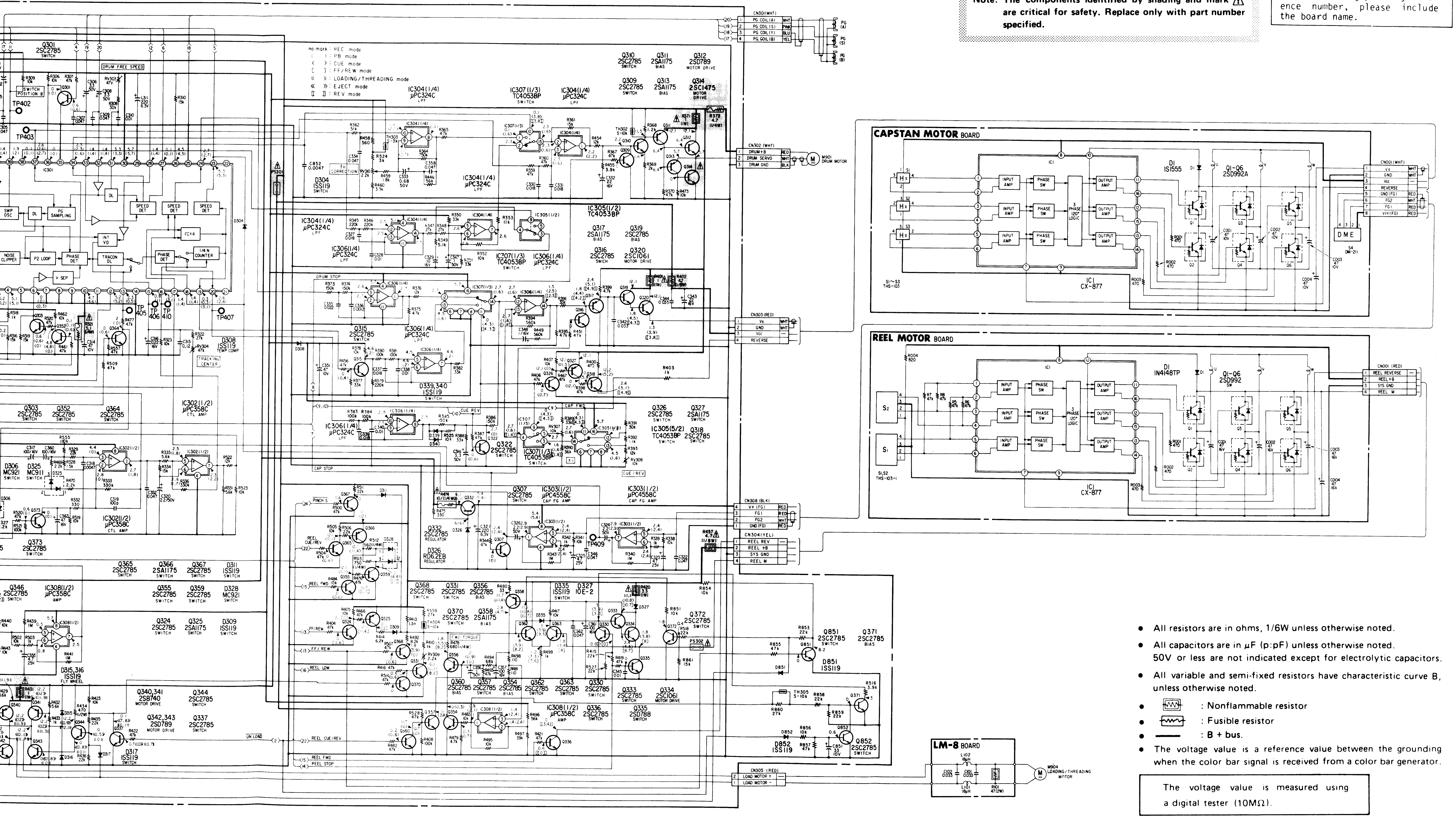
S-4 (CASSETTE IN SWITCH)

– Ref. No. SS-16 BOARD: 3000 seires, FU-15 BOARD: 7000 series, RD-6 BOARD: 100 series, RD-7 BOARD: 200 series, LM-8 BOARD: 7000 series, REELMOTOR BOARD: 300 series, CS-3 BOARD: 7000 series, CS-4 BOARD: 4000 series –

T | U | V | W | X | Y | Z | A1 | B1 | C1 | D1 | E1 | F1 | G1 | H1 | I1

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.


no mark : REC mode
( ) : PB mode
< > : CUE mode
[ ] : FF/REW mode
(( )) : LOADING/THREADING mode
« » : EJECT mode
[[ ]] : REV mode
Q301 2SC2785 SWITCH
DRUM FREE SPEED
TP402
TP403
IC301
SWP OSC
DL
PG SAMPLING
SPEED DET
NOISE CLIPPER
P2 LOOP
PHASE DET
TRACON DL
PHASE DET
1/4 N COUNTER
FC×4
INT VD
V SEP
TP405 TP406 TP410 TP407
TRACKING CENTER
Q303 2SC2785 SWITCH
Q352 2SC2785 SWITCH
Q364 2SC2785 SWITCH
IC302(1/2) μPC358C CTL AMP
D306 MC921 SWITCH
D325 MC911 SWITCH
Q373 2SC2785 SWITCH
Q346 2SC2785 SWITCH
IC308(1/2) μPC358C AMP
D315,316 ISS119 FLY WHEEL
Q340,341 2SB740 MOTOR DRIVE
Q342,343 2SD789 MOTOR DRIVE
Q344 2SC2785 SWITCH
Q337 2SC2785 SWITCH
D317 ISS119 SWITCH
Q365 2SC2785 SWITCH
Q366 2SA1175 SWITCH
Q367 2SC2785 SWITCH
D311 ISS119 SWITCH
Q355 2SC2785 SWITCH
Q359 2SC2785 SWITCH
D328 MC921 SWITCH
Q324 2SC2785 SWITCH
Q325 2SA1175 SWITCH
D309 ISS119 SWITCH
IC304(1/4) μPC324C LPF
IC307(1/3) TC4053BP SWITCH
IC305(1/2) TC4053BP
IC306(1/4) μPC324C LPF
D304 ISS119 SWITCH
Q310 2SC2785 SWITCH
Q311 2SA1175 BIAS
Q312 2SD789 MOTOR DRIVE
Q309 2SC2785 SWITCH
Q313 2SA1175 BIAS
Q314 2SC1475 MOTOR DRIVE
Q317 2SA1175 BIAS
Q319 2SC2785 BIAS
Q316 2SC2785 SWICH
Q320 2SC1061 MOTOR DRIVE
Q315 2SC2785 SWITCH
D339,340 ISS119 SWITCH
Q322 2SC2785 SWITCH
Q326 2SC2785 SWITCH
Q327 2SA1175 SWITCH
IC305(5/2) TC4053BP SWITCH
Q318 2SC2785 SWITCH
Q307 2SC2785 SWITCH
IC303(1/2) μPC4558C CAP FG AMP
Q332 2SC2785 REGULATOR
D326 RD6.2EB REGULATOR
Q368 2SC2785 SWITCH
Q331 2SC2785 SWITCH
Q356 2SC2785 BIAS
D335 ISS119
D327 10E-2
Q370 2SC2785 SWITCH
Q358 2SA1175 BIAS
Q372 2SC2785 SWITCH
Q360 2SC2785 BIAS
Q357 2SC2785 SWITCH
Q354 2SC2785 BIAS
Q362 2SC2785 SWITCH
Q363 2SC2785 SWITCH
Q330 2SC2785 SWITCH
Q333 2SC2785 SWITCH
Q334 2SC1061 MOTOR DRIVE
IC308(1/2) μPC358C AMP
Q336 2SC2785 SWITCH
Q335 2SD788 SWITCH
Q851 2SC2785 SWITCH
Q371 2SC2785 BIAS
D851 ISS119
D852 ISS119
Q852 2SC2785 SWITCH
CN301 (WHT) PG COIL (A) PG COIL (S) PG COIL (Y) PG COIL (B)
CN302 (WHT) DRUM +B DRUM SERVO DRUM GND
M901 DRUM MOTOR
CN303 (RED) Vs GND Vcc REVERSE
CN308 (BLK) V+ (FG) FG1 FG2 GND (FG)
CN304 (YEL) REEL REV REEL +B SYS GND REEL M
CN305 (RED) LOAD MOTOR + LOAD MOTOR −
PINCH S
REEL CUE/REV
REEL FWD
FF/REW
REEL LOW
REEL STOP
UN LOAD
DRUM STOP
CAP STOP
CAP FWD
CUE REV
FWD TORQUE
CAPSTAN MOTOR BOARD
INPUT AMP
PHASE SW
3 PHASE 120° LOGIC
OUTPUT AMP
IC1 CX-877
D1 IS1555
Q1-Q6 2SD992A
S1~S3 THS-103
CN001 (WHT) Vs GND Vcc REVERSE GND (FG) FG2 FG1 V(+)(FG)
DME
S4 DM-211
REEL MOTOR BOARD
D1 1N4148TP
Q1-Q6 2SD992 SW
S1,S2 THS-103-1
CN001 (RED) REEL REVERSE REEL +B SYS GND REEL M
LM-8 BOARD
L102 18μH
L101 18μH
R101 47(1/2W)
M904 LOADING/THREADING MOTOR

- All resistors are in ohms, 1/6W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted. 50V or less are not indicated except for electrolytic capacitors.
- All variable and semi-fixed resistors have characteristic curve B, unless otherwise noted.
- : Nonflammable resistor
- : Fusible resistor
- : B + bus.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.

The voltage value is measured using a digital tester (10MΩ).

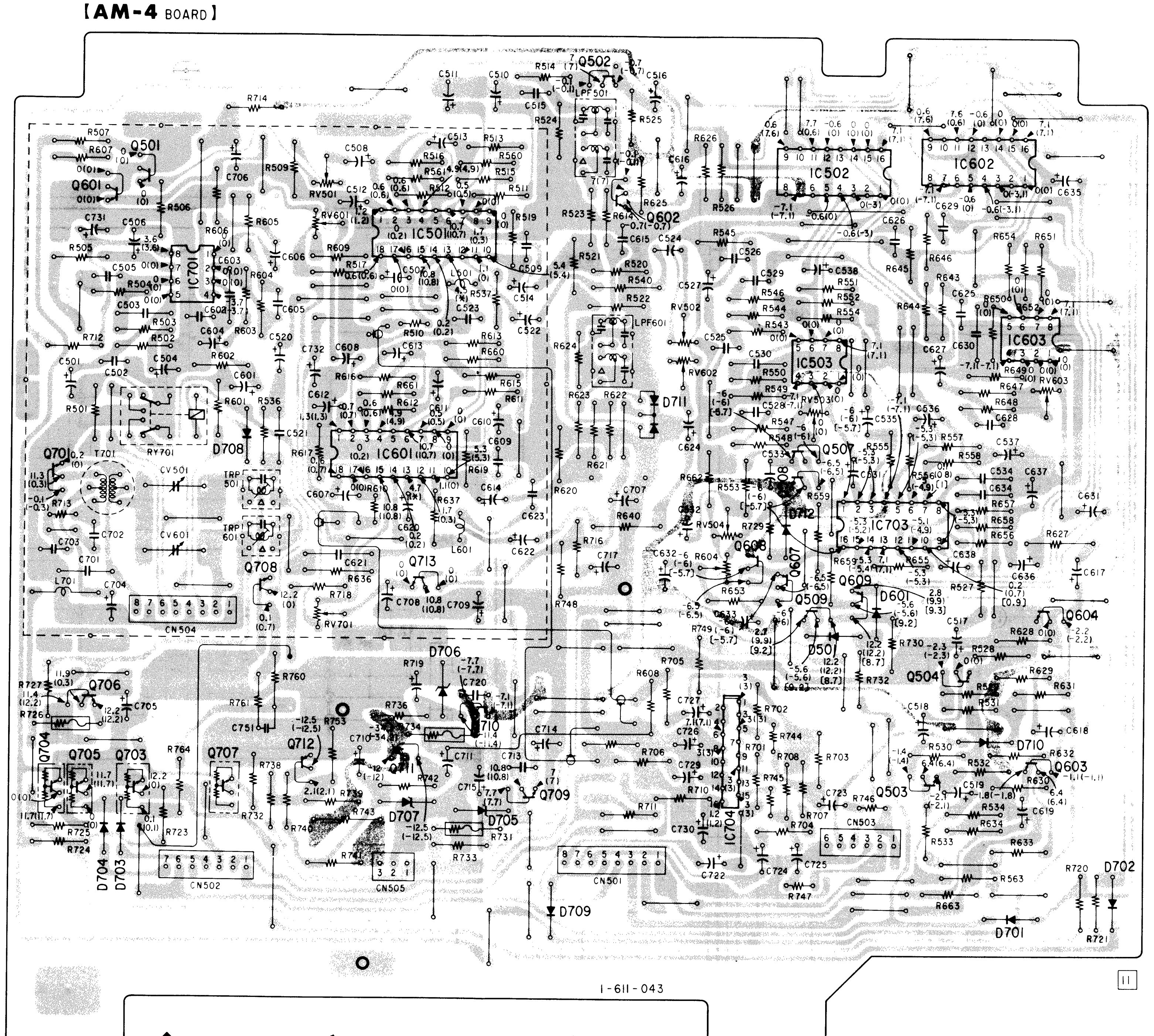
TU-50 (VIF, SIF, AFC, CHANNEL PRESET) **AM-4** (AUDIO RECORD/ PLAY BACK PROCESS) **MT-7** (INTERMEDIATION)

A B C D E F G H I J K L M N O P

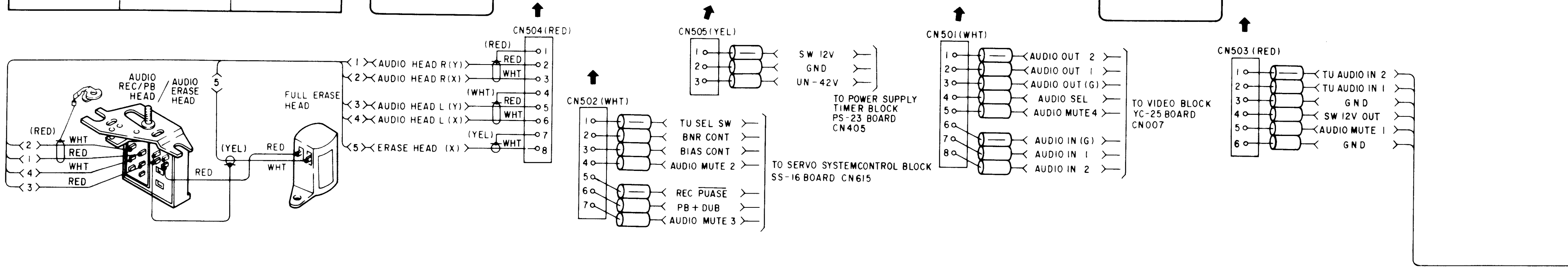
– Ref. No. TU-50 BOARD: 4000 series, AM-4 BOARD: 5000 series –

	TP, ADJ	D	IC, Q
1			502 IC602 IC502
2	RV501 RV601		602 501 601 IC501
3	RV502 RV602 RV603 RV503		IC701 IC603 IC503
4	CV501 CV601 RV504	711 708	507 IC601,508 701
5	RV701	712 601 501	IC703 608,609 708,713,607 509,604
6		706 710	504 706 710 603 503 712 IC704 704,711, 705,709 703 707
7		704,707 703,705 701 702 709	

[AM-4 BOARD]



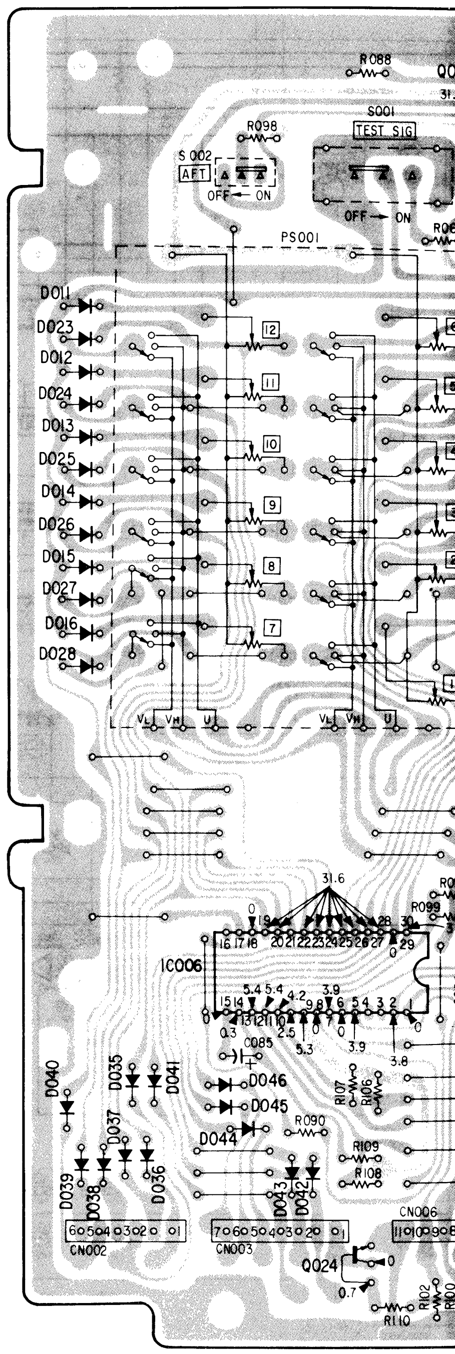
Q501
Q601
IC701
IC501
Q502
LPF501
Q602
IC502
IC602
LPF601
IC503
IC603
RY701
T701
Q701
CV501
CV601
TRP501
TRP601
IC601
D708
D711
Q507
IC703
Q608
Q607
Q609
Q509
D601
D501
Q504
Q604
Q706
Q704
Q705
Q703
Q707
Q712
Q708
Q713
D706
D707
D705
Q709
IC704
Q503
Q603
D710
D709
D701
D702
D703
D704
CN504
CN502
CN505
CN501
CN503
1-611-043
11



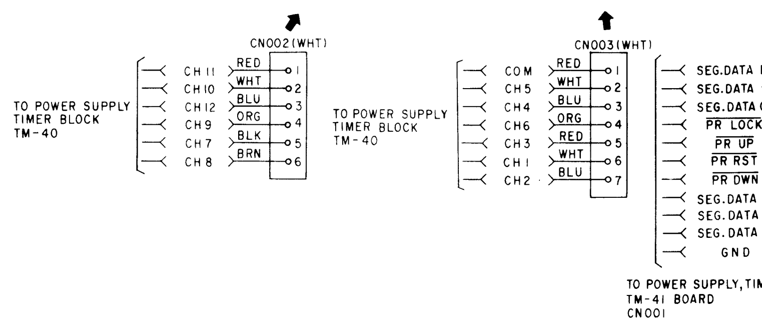
AUDIO REC/PB HEAD
AUDIO ERASE HEAD
FULL ERASE HEAD
(RED)
WHT
RED
(YEL)
CN504 (RED)
AUDIO HEAD R(Y)
AUDIO HEAD R(X)
AUDIO HEAD L(Y)
AUDIO HEAD L(X)
ERASE HEAD (X)
(WHT)
CN502 (WHT)
TU SEL SW
BNR CONT
BIAS CONT
AUDIO MUTE 2
REC PUASE
PB + DUB
AUDIO MUTE 3
TO SERVO SYSTEMCONTROL BLOCK SS-16 BOARD CN615
CN505 (YEL)
SW 12V
GND
UN -42V
TO POWER SUPPLY TIMER BLOCK PS-23 BOARD CN405
CN501 (WHT)
AUDIO OUT 2
AUDIO OUT 1
AUDIO OUT (G)
AUDIO SEL
AUDIO MUTE 4
AUDIO IN (G)
AUDIO IN 1
AUDIO IN 2
TO VIDEO BLOCK YC-25 BOARD CN007
CN503 (RED)
TU AUDIO IN 2
TU AUDIO IN 1
GND
SW 12V OUT
AUDIO MUTE 1
GND

	Q·IC	D	TP·RV
1	IC005 020		
2	016 001	007,008	001
3	017 IC001 IC002	011 017 023 029 012 018 024 030 013 019	RV001
4	002	025 031 014 020 026 032 015 021 027 033	RV002 RV003
5	003 018	016 022 028 034 005 004	
6	019 021 015 011 IC006 023 IC004 IC003 012 007	006 002 003 010 050	
7	022 009 008 026,027 014 025 010	009,049 035,041 046 040 045 044 037,036 039,038 043,042 006	
8	024 013		

[TU-50 BOARD]



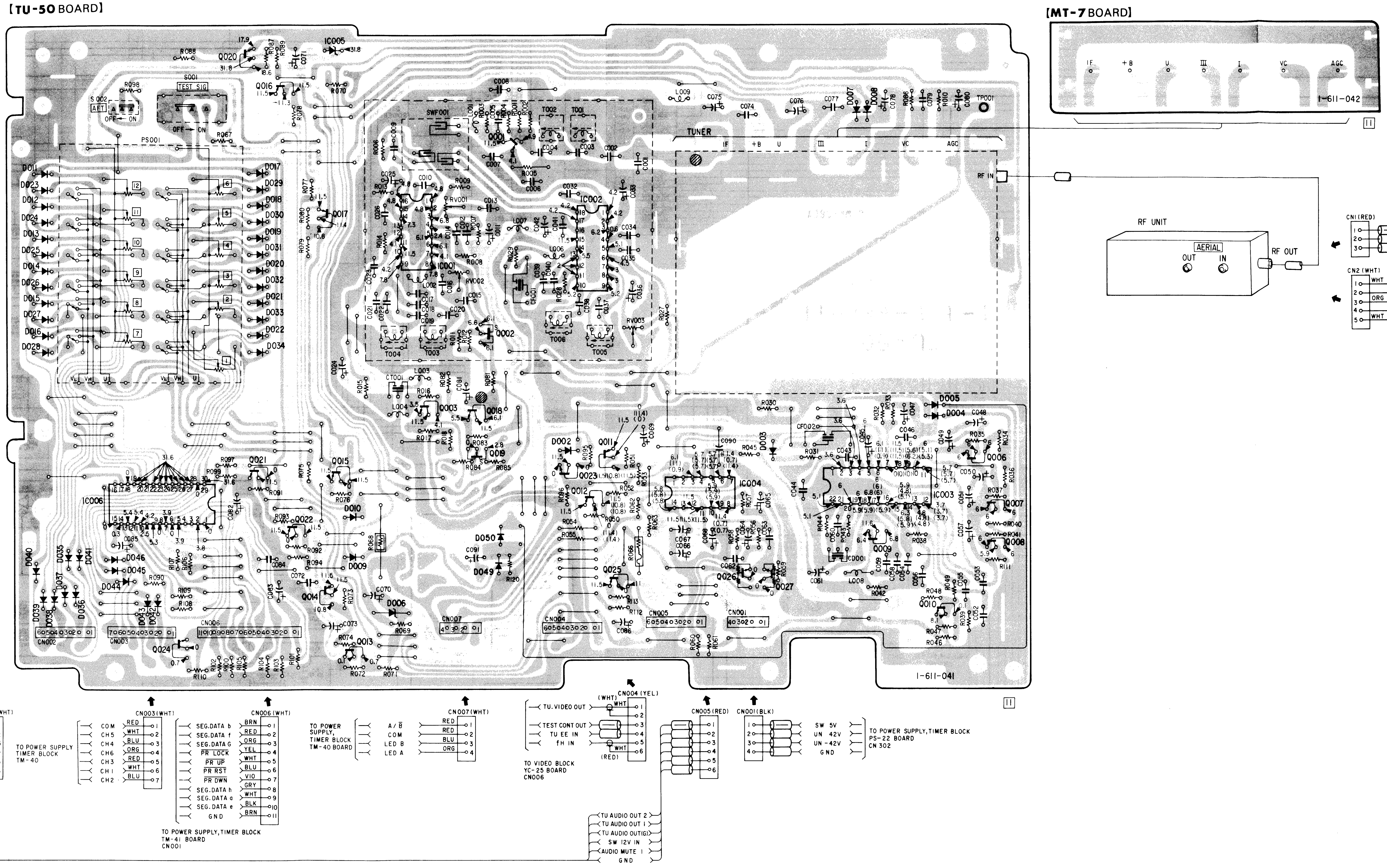
R088
R098
S001
TEST SIG
S002
AFT
OFF — ON
PS001
D011
D023
D012
D024
D013
D025
D014
D026
D015
D027
D016
D028
IC006
D040
D035
D041
D037
D036
D039
D038
D046
D045
D044
R090
R106
R109
R108
D043
D042
CN002
CN003
CN006
Q024
R110
R099

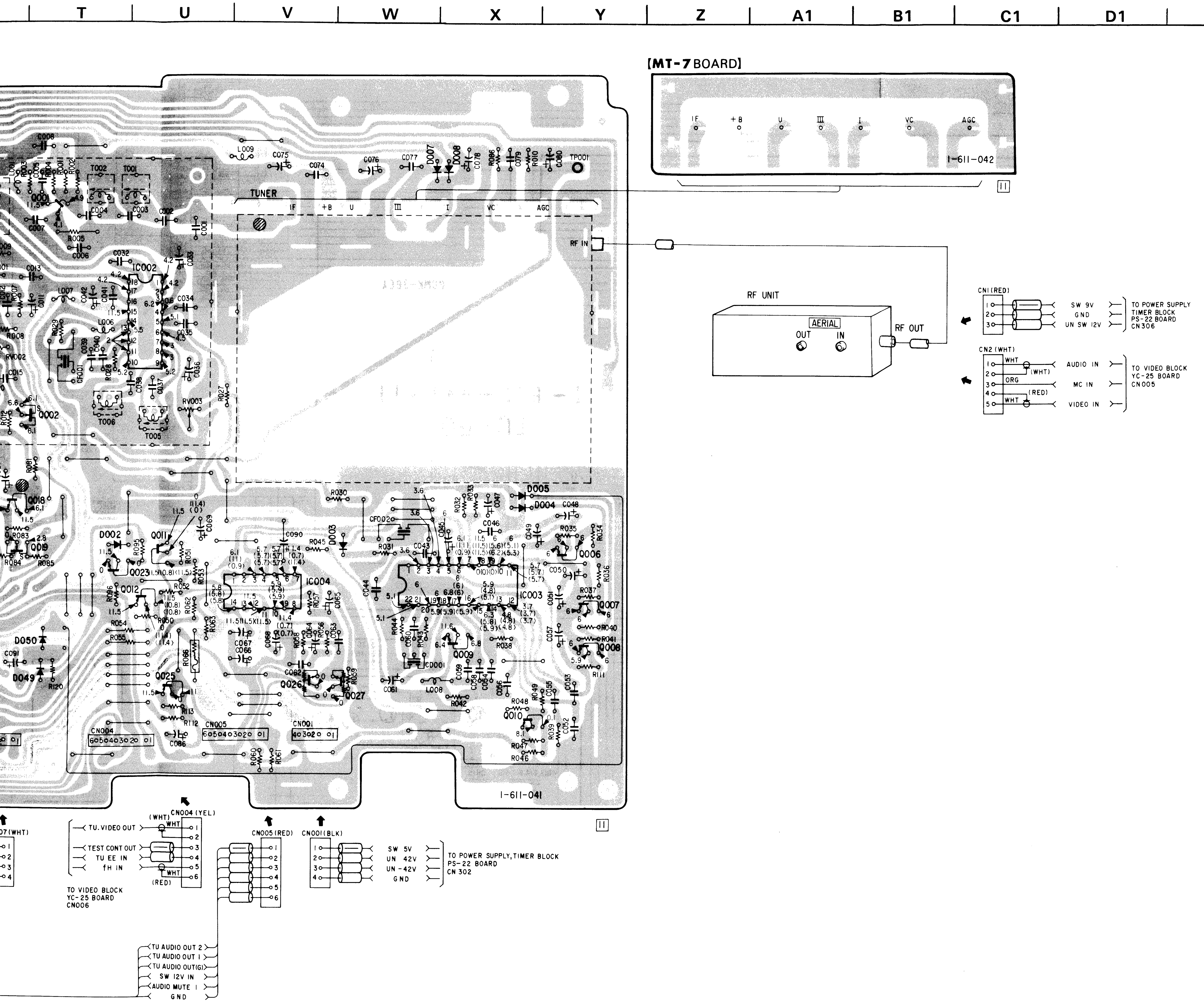


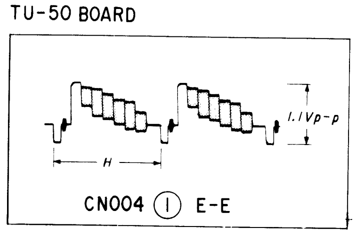
CN002 (WHT)
CH 11
CH 10
CH 12
CH 9
CH 7
CH 8
RED
WHT
BLU
ORG
BLK
BRN
TO POWER SUPPLY TIMER BLOCK TM-40
CN003 (WHT)
COM
CH 5
CH 4
CH 6
CH 3
CH 1
CH 2
RED
WHT
BLU
ORG
RED
WHT
BLU
TO POWER SUPPLY TIMER BLOCK TM-40
SEG.DATA
SEG.DATA
SEG.DATA
PR LOCK
PR UP
PR RST
PR DWN
SEG.DATA
SEG.DATA
SEG.DATA
GND
TO POWER SUPPLY,TIM
TM-41 BOARD
CN001

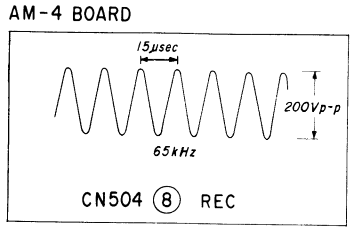
M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A1 | B1 | C1

Q·IC	D	TP·RV
IC005		
	007,008	
		001
001		
	011 017	
C001 IC002	023 029	RV001
	012 018	
	024 030	
	013 019	
	025 031	
	014 020	RV002
	026 032	
	015 021	
002	027 033	RV003
	016 022	
	028 034	
003	005 004	
018		
019 006	002 003	
21 015 011		
023 IC004		
IC003		
012		
007	010	
2 009 008	050	
	009,049	
	035,041	
026,027	040 045 046 044	
14 025	037,036	
	039,038	
010	043,042	
	006	
013		

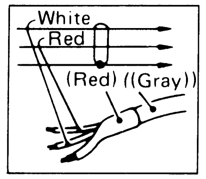

【TU-50 BOARD】
【MT-7 BOARD】
IF +B U Ⅲ I VC AGC
1-611-042
TUNER
RF IN
RF UNIT
AERIAL
OUT IN
RF OUT
CN1 (RED)
CN2 (WHT)
WHT
ORG
WHT
S002 AFT OFF ON
S001 TEST SIG OFF ON
PS001
SWF001
IC001 IC002 IC003 IC004 IC005 IC006
T001 T002 T003 T004 T005 T006
RV001 RV002 RV003
TP001
CF001 CF002
CT001
1-611-041
CN002 CN003 CN006 CN007 CN004 CN005 CN001
CN002 (WHT)
TO POWER SUPPLY TIMER BLOCK TM-40
CH 11 RED 1
CH 10 WHT 2
CH 12 BLU 3
CH 9 ORG 4
CH 7 BLK 5
CH 8 BRN 6
CN003 (WHT)
TO POWER SUPPLY TIMER BLOCK TM-40
COM RED 1
CH 5 WHT 2
CH 4 BLU 3
CH 6 ORG 4
CH 3 RED 5
CH 1 WHT 6
CH 2 BLU 7
CN006 (WHT)
SEG.DATA b BRN 1
SEG.DATA f RED 2
SEG.DATA G ORG 3
PR LOCK YEL 4
PR UP WHT 5
PR RST BLU 6
PR DWN VIO 7
SEG.DATA h GRY 8
SEG.DATA a WHT 9
SEG.DATA e BLK 10
GND BRN 11
TO POWER SUPPLY, TIMER BLOCK TM-41 BOARD CN001
CN007 (WHT)
TO POWER SUPPLY, TIMER BLOCK TM-40 BOARD
A/B̄ RED 1
COM RED 2
LED B BLU 3
LED A ORG 4
CN004 (YEL)
TU. VIDEO OUT (WHT) WHT 1
2
TEST CONT OUT 3
TU EE IN 4
fH IN 5
WHT (RED) 6
TO VIDEO BLOCK YC-25 BOARD CN006
CN005 (RED)
TU AUDIO OUT 2
TU AUDIO OUT 1
TU AUDIO OUT(G)
SW 12V IN
AUDIO MUTE 1
GND
CN001 (BLK)
1 SW 5V
2 UN 42V
3 UN -42V
4 GND
TO POWER SUPPLY, TIMER BLOCK PS-22 BOARD CN 302
II


T
U
V
W
X
Y
Z
A1
B1
C1
D1
E1
F1
G1
H1
I1
[MT-7 BOARD]
IF
+B
U
III
I
VC
AGC
1-611-042
TUNER
RF IN
RF UNIT
AERIAL
OUT
IN
RF OUT
CN1 (RED)
SW 9V
GND
UN SW 12V
TO POWER SUPPLY TIMER BLOCK PS-22 BOARD CN306
CN2 (WHT)
WHT
ORG
(WHT)
(RED)
AUDIO IN
MC IN
VIDEO IN
TO VIDEO BLOCK YC-25 BOARD CN005
IC002
IC003
IC004
D005
D004
Q006
Q007
Q008
Q009
Q010
Q011
Q012
Q018
Q019
Q023
Q025
Q026
Q027
D050
D049
CN004 6050403020 01
CN005 6050403020 01
CN001 403020 01
1-611-041
CN004 (YEL)
(WHT)
TU. VIDEO OUT
TEST CONT OUT
TU EE IN
fH IN
(RED)
TO VIDEO BLOCK YC-25 BOARD CN006
CN005 (RED)
CN001 (BLK)
SW 5V
UN 42V
UN -42V
GND
TO POWER SUPPLY, TIMER BLOCK PS-22 BOARD CN 302
TU AUDIO OUT 2
TU AUDIO OUT 1
TU AUDIO OUT(G)
SW 12V IN
AUDIO MUTE 1
GND





- Color code of sleeving over the end of the jacket.


White
Red
(Red) ((Gray))

- ○— indicates a lead wire mounted on the component side.
- ●— indicates a lead wire mounted on the printed side.
- ▨ Soldering side
- ░ B + pattern
- ▓

- All resistors are in ohms, 1/6W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted. 50V or less are not indicated except for electrolytic capacitors.
- All variable and semi-fixed resistors have characteristic curve B, unless otherwise noted.
- ▭ : Nonflammable resistor
- ⏛ : Fusible resistor
- △ : Internal component
- ─── : B + bus.
- - - - : B − bus.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.

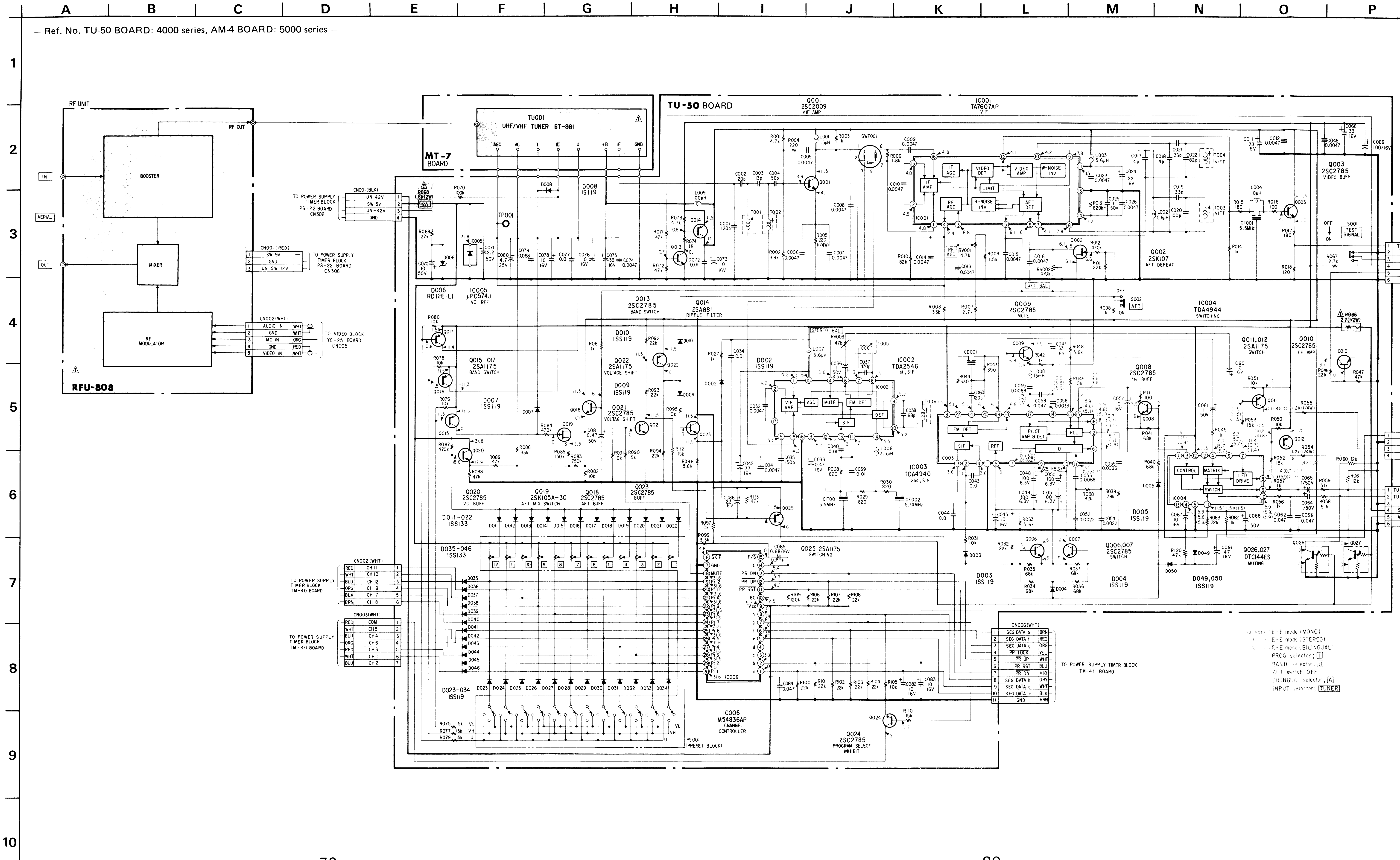
The voltage value is measured using a digital tester (10MΩ).

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

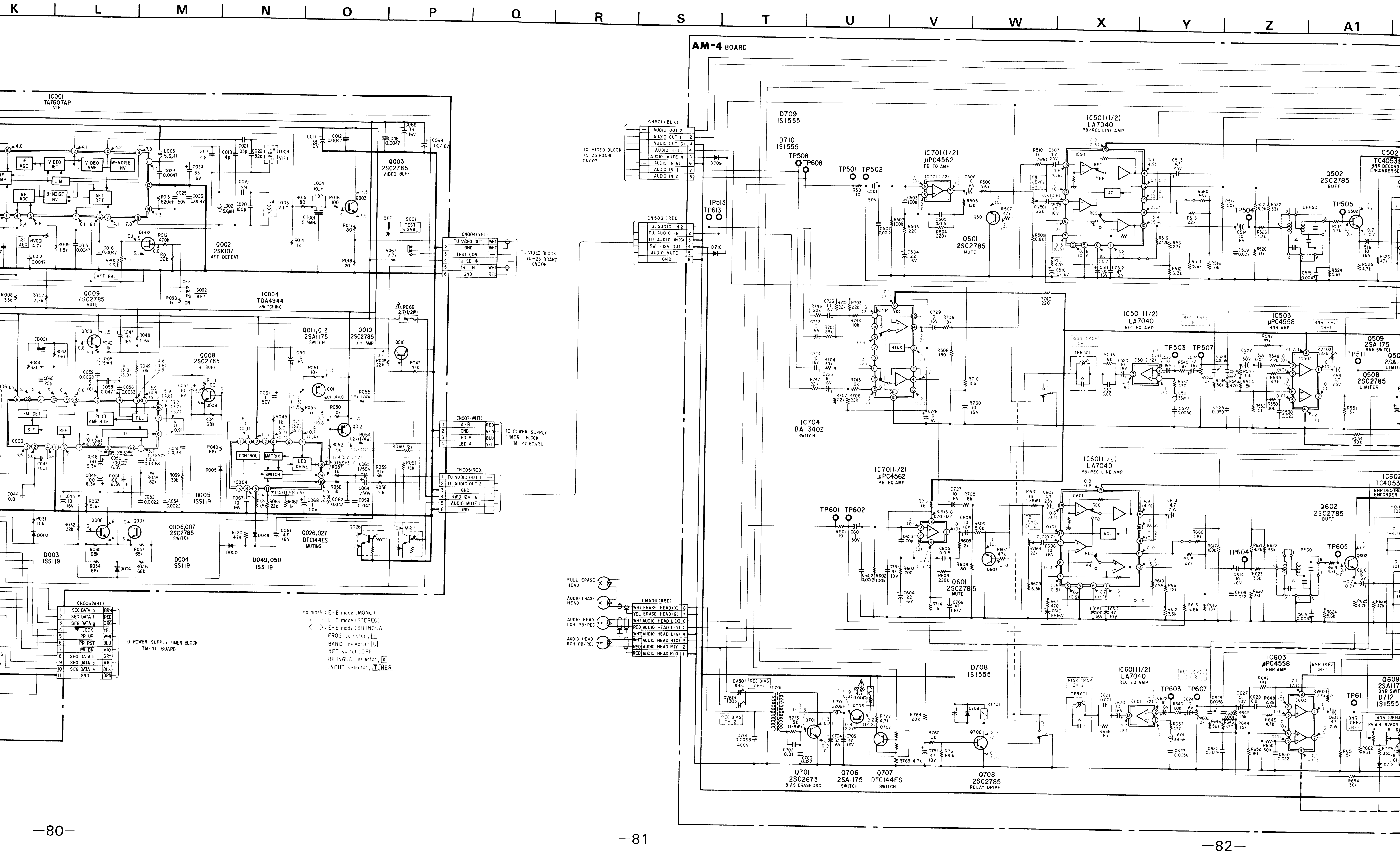
When indicating parts by reference number, please include the board name.

TU-50 (VIF, SIF, AFC, CHANNEL PRESET) **AM-4** (AUDIO RECORD/PLAY BACK PROCESS) **MT-7** (INTERMEDIATION)

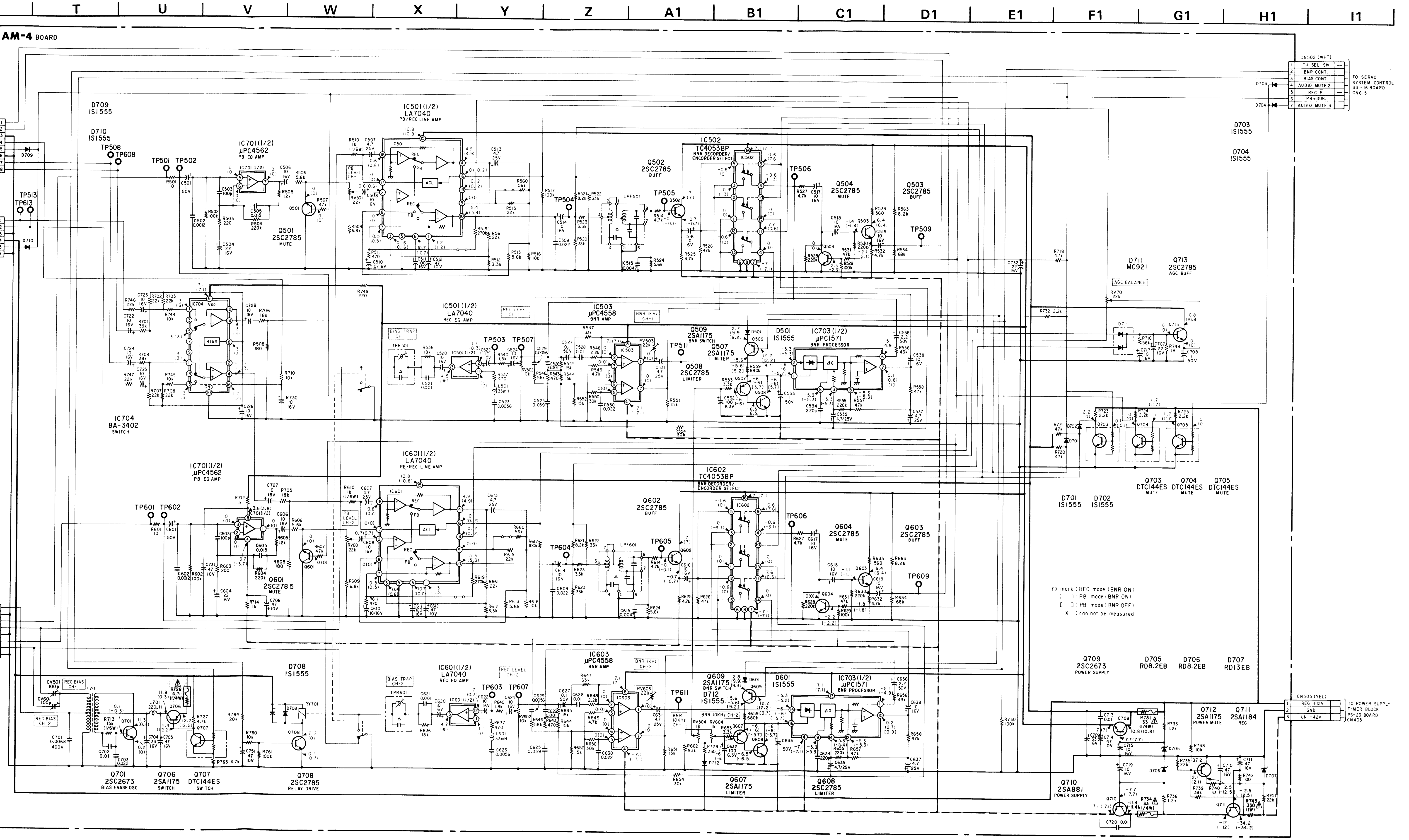
– Ref. No. TU-50 BOARD: 4000 series, AM-4 BOARD: 5000 series –


A B C D E F G H I J K L M N O P
1 2 3 4 5 6 7 8 9 10
RF UNIT
RFU-808
BOOSTER
MIXER
RF MODULATOR
AERIAL
IN
OUT
RF OUT
TO POWER SUPPLY TIMER BLOCK PS-22 BOARD CN302
TO POWER SUPPLY TIMER BLOCK PS-22 BOARD CN306
TO VIDEO BLOCK YC-25 BOARD CN005
MT-7 BOARD
TU001 UHF/VHF TUNER BT-881
TU-50 BOARD
Q001 2SC2009 VIF AMP
IC001 TA7607AP VIF
Q003 2SC2785 VIDEO BUFF
Q002 2SK107 AFT DEFEAT
IF AGC
VIDEO DET
VIDEO AMP
W-NOISE INV
LIMIT
RF AGC
B-NOISE INV
AFT DET
AFT BAL
SWF001
T001 T002 T003 T004
CT001 5.5MHz
TEST SIGNAL
S001
S002 AFT
D006 RD12E-L1
IC005 µPC574J VC REF
D008 1SS119
TP001
Q013 2SC2785 BAND SWITCH
Q014 2SA881 RIPPLE FILTER
Q009 2SC2785 MUTE
IC004 TDA4944 SWITCHING
Q011,012 2SA1175 SWITCH
Q010 2SC2785 fH AMP
Q015-017 2SA1175 BAND SWITCH
D007 1SS119
D010 1SS119
Q022 2SA1175 VOLTAGE SHIFT
D009 1SS119
Q021 2SC2785 VOLTAG SHIFT
D002 1SS119
IC002 TDA2546 1st SIF
VIF AMP
AGC
MUTE
FM DET
SIF
DET
IC003 TDA4940 2nd SIF
FM DET
PILOT AMP & DET
PLL
ID
REF
Q008 2SC2785 fH BUFF
CONTROL
MATRIX
LED DRIVE
SWITCH
CF001 5.5MHz
CF002 5.74MHz
Q020 2SC2785 VC BUFF
Q019 2SK105A-30 AFT MIX SWITCH
Q018 2SC2785 AFT BUFF
Q023 2SC2785 BUFF
D011-022 1SS133
D035-046 1SS133
Q025 2SA1175 SWITCHING
D003 1SS119
Q006,007 2SC2785 SWITCH
D004 1SS119
D005 1SS119
D049,050 1SS119
Q026,027 DTC144ES MUTING
TO POWER SUPPLY TIMER BLOCK TM-40 BOARD
D023-034 1SS119
PS001 (PRESET BLOCK)
IC006 M54836AP CHANNEL CONTROLLER
Q024 2SC2785 PROGRAM SELECT INHIBIT
CN006 (WHT)
TO POWER SUPPLY TIMER BLOCK TM-41 BOARD

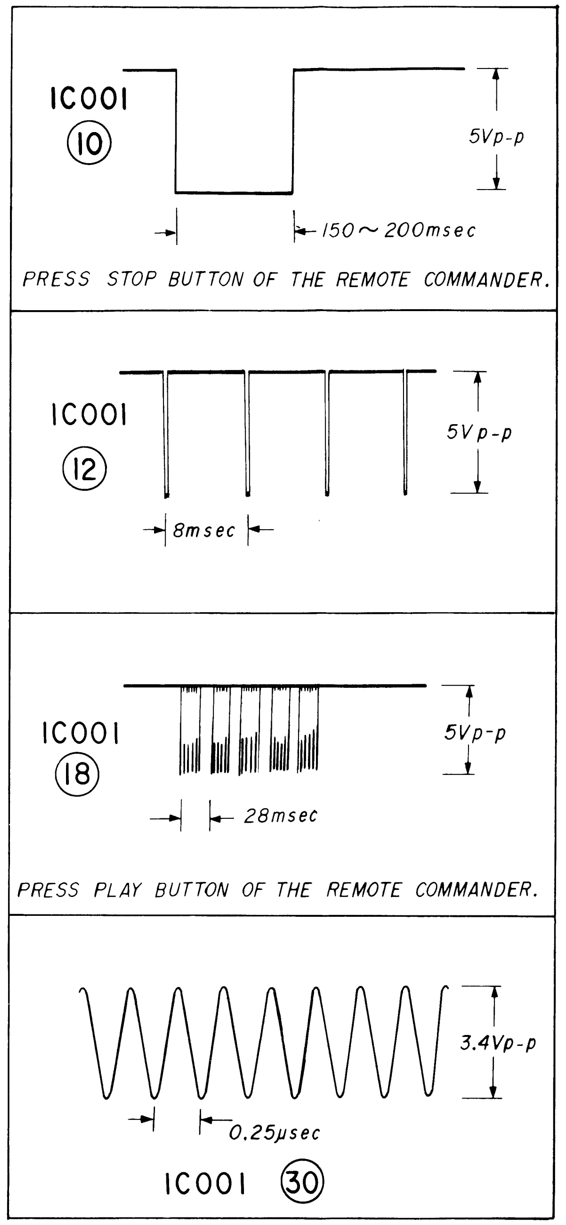
no mark : E-E mode (MONO)
( ) : E-E mode (STEREO)
< > : E-E mode (BILINGUAL)
PROG selector; [1]
BAND selector; [U]
AFT switch :OFF
BILINGUAL selector; [A]
INPUT selector; [TUNER]


K
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z
A1
IC001 TA7607AP VIF
IF AGC
VIDEO DET
VIDEO AMP
W-NOISE INV
LIMIT
RF AGC
B-NOISE INV
AFT DET
AFT BAL
Q002 2SK107 AFT DEFEAT
Q003 2SC2785 VIDEO BUFF
Q009 2SC2785 MUTE
IC004 TDA4944 SWITCHING
S001 TEST SIGNAL
S002 AFT
CN004 (YEL)
TU VIDEO OUT
GND
TEST CONT
TU EE IN
TH IN
GND
TO VIDEO BLOCK YC-25 BOARD CN006
IC003
FM DET
SIF
REF
PILOT AMP & DET
PLL
ID
Q008 2SC2785 fH BUFF
Q011,012 2SA1175 SWITCH
Q010 2SC2785 fH AMP
CONTROL
MATRIX
LED DRIVE
SWITCH
CN007 (WHT)
A/B
GND
LED B
LED A
TO POWER SUPPLY TIMER BLOCK TM-40 BOARD
CN005 (RED)
TU AUDIO OUT 1
TU AUDIO OUT 2
GND
SWD 12V IN
AUDIO MUTE 1
GND
Q006,007 2SC2785 SWITCH
D003 1SS119
D004 1SS119
D005 1SS119
D049,050 1SS119
Q026,027 DTC144ES MUTING
CN006 (WHT)
SEG DATA b
SEG DATA f
SEG DATA g
PR LOCK
PR UP
PR RST
PR DN
SEG DATA h
SEG DATA a
SEG DATA e
GND
TO POWER SUPPLY TIMER BLOCK TM-41 BOARD
AM-4 BOARD
CN501 (BLK)
AUDIO OUT 2
AUDIO OUT 1
AUDIO OUT (G)
AUDIO SEL.
AUDIO MUTE 4
AUDIO IN (G)
AUDIO IN 1
AUDIO IN 2
TO VIDEO BLOCK YC-25 BOARD CN007
CN503 (RED)
TU. AUDIO IN 2
TU. AUDIO IN 1
TU AUDIO IN (G)
SW +12V OUT
AUDIO MUTE 1
GND
D709 1S1555
D710 1S1555
IC701 (1/2) μPC4562 PB EQ AMP
Q501 2SC2785 MUTE
IC501 (1/2) LA7040 PB/REC LINE AMP
Q502 2SC2785 BUFF
IC502 TC4053B BNR DECORDER ENCORDER SW
LPF501
IC704 BA-3402 SWITCH
BIAS
IC501 (1/2) LA7040 REC EQ AMP
IC503 μPC4558 BNR AMP
Q509 2SA1175 BNR SWITCH
Q508 2SC2785 LIMITER
IC701 (1/2) μPC4562 PB EQ AMP
Q601 2SC2785 MUTE
IC601 (1/2) LA7040 PB/REC LINE AMP
Q602 2SC2785 BUFF
IC602 TC4053 BNR DECORDER ENCORDER
LPF601
FULL ERASE HEAD
AUDIO ERASE HEAD
AUDIO HEAD LCH PB/REC
AUDIO HEAD RCH PB/REC
CN504 (RED)
ERASE HEAD (X)
ERASE HEAD (G)
AUDIO HEAD L (X)
AUDIO HEAD L (Y)
AUDIO HEAD L (G)
AUDIO HEAD R (X)
AUDIO HEAD R (Y)
AUDIO HEAD R (G)
D708 1S1555
RY701
IC601 (1/2) LA7040 REC EQ AMP
IC603 μPC4558 BNR AMP
Q609 2SA1175 BNR SWITCH
D712 1S1555
Q701 2SC2673 BIAS ERASE OSC
Q706 2SA1175 SWITCH
Q707 DTC144ES SWITCH
Q708 2SC2785 RELAY DRIVE

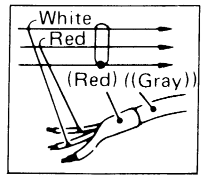
no mark : E-E mode (MONO)
( ) : E-E mode (STEREO)
< > : E-E mode (BILINGUAL)
PROG selector ; [I]
BAND selector ; [U]
AFT switch ; OFF
BILINGUAL selector ; [A]
INPUT selector ; [TUNER]


T
U
V
W
X
Y
Z
A1
B1
C1
D1
E1
F1
G1
H1
I1
AM-4 BOARD
D709 1S1555
D710 1S1555
TP508
TP608
TP513
TP613
TP501
TP502
IC701(1/2) µPC4562 PB EQ AMP
Q501 2SC2785 MUTE
IC501(1/2) LA7040 PB/REC LINE AMP
IC502 TC4053BP BNR DECORDER/ENCORDER SELECT
Q502 2SC2785 BUFF
TP504
TP505
LPF501
TP506
Q504 2SC2785 MUTE
Q503 2SC2785 BUFF
TP509
D711 MC921
Q713 2SC2785 AGC BUFF
AGC BALANCE
CN502 (WHT)
TU SEL SW
BNR CONT.
BIAS CONT.
AUDIO MUTE 2
REC P.
PB+DUB.
AUDIO MUTE 3
TO SERVO SYSTEM CONTROL SS-16 BOARD CN615
D703 1S1555
D704 1S1555
IC704 BA-3402 SWITCH
IC501(1/2) LA7040 REC EQ AMP
BIAS TRAP CH-1
REC LEVEL CH-1
TP503
TP507
IC503 µPC4558 BNR AMP
BNR 1kHz CH-1
TP511
Q509 2SA1175 BNR SWITCH
Q507 2SA1175 LIMITER
Q508 2SC2785 LIMITER
D501 1S1555
IC703(1/2) µPC1571 BNR PROCESSOR
Q703 DTC144ES MUTE
Q704 DTC144ES MUTE
Q705 DTC144ES MUTE
D701 1S1555
D702 1S1555
IC701(1/2) µPC4562 PB EQ AMP
TP601
TP602
IC601(1/2) LA7040 PB/REC LINE AMP
Q601 2SC2785 MUTE
IC602 TC4053BP BNR DECORDER/ENCORDER SELECT
Q602 2SC2785 BUFF
TP604
TP605
LPF601
TP606
Q604 2SC2785 MUTE
Q603 2SC2785 BUFF
TP609
no mark : REC mode (BNR ON)
( ) : PB mode (BNR ON)
[ ] : PB mode (BNR OFF)
* : can not be measured
Q709 2SC2673 POWER SUPPLY
D705 RD8.2EB
D706 RD8.2EB
D707 RD13EB
D708 1S1555
IC603 µPC4558 BNR AMP
BNR 1kHz CH-2
IC601(1/2) LA7040 REC EQ AMP
BIAS TRAP CH-2
REC LEVEL CH-2
TP603
TP607
TP611
Q609 2SA1175 BNR SWITCH
D712 1S1555
D601 1S1555
IC703(1/2) µPC1571 BNR PROCESSOR
BNR 10kHz CH-2
REC BIAS CH-1
REC BIAS CH-2
T701
RY701
Q701 2SC2673 BIAS ERASE OSC
Q706 2SA1175 SWITCH
Q707 DTC144ES SWITCH
Q708 2SC2785 RELAY DRIVE
Q607 2SA1175 LIMITER
Q608 2SC2785 LIMITER
Q712 2SA1175 POWER MUTE
Q711 2SA1184 REG
Q710 2SA881 POWER SUPPLY
CN505 (YEL)
REG +12V
GND
UN -42V
TO POWER SUPPLY TIMER BLOCK PS-23 BOARD CN405

TM - 41 BOARD



- Color code of sleeving over the end of the jacket.

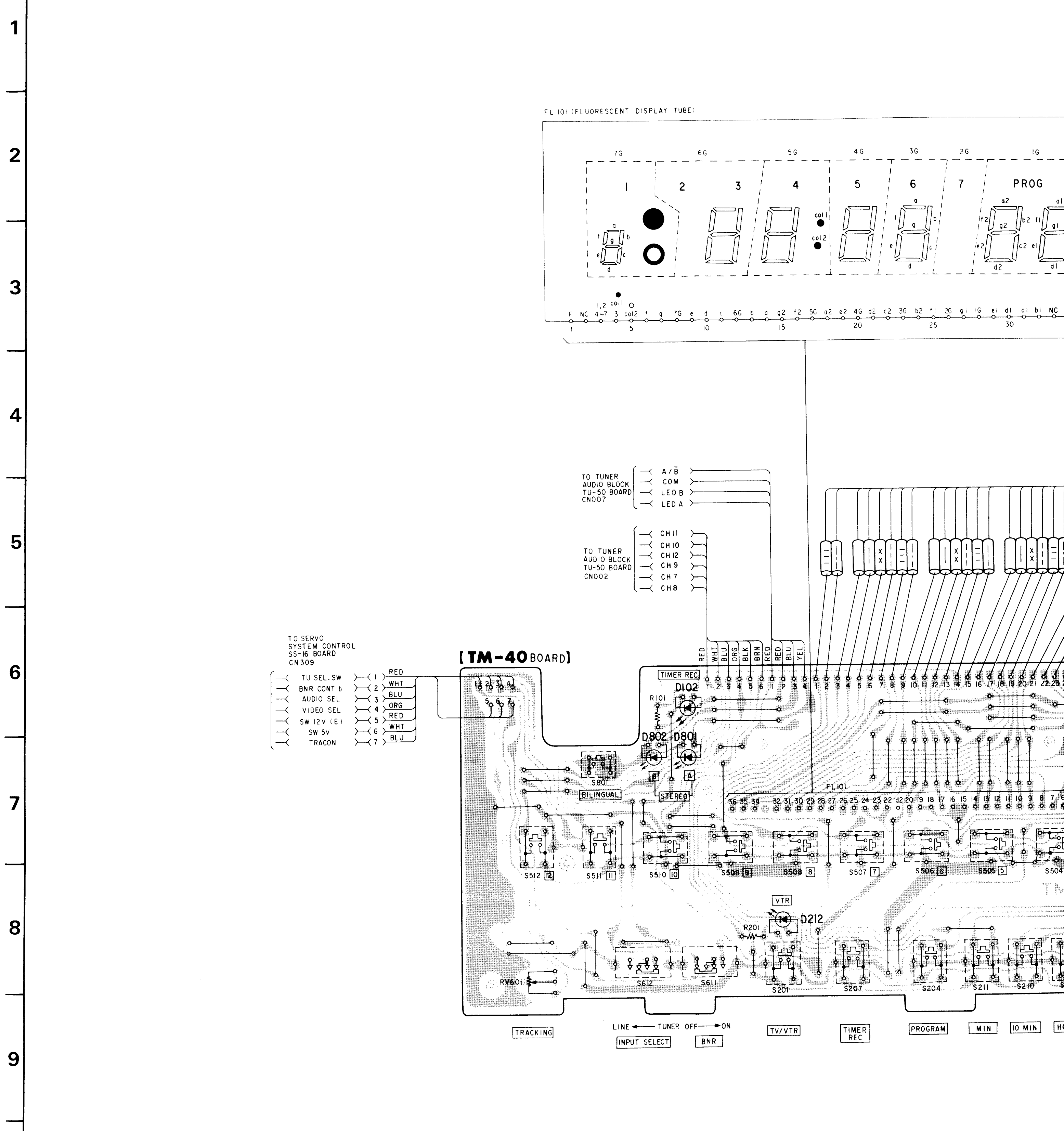

White
Red
(Red) ((Gray))

- ○— indicates a lead wire mounted on the component side.
- ●— indicates a lead wire mounted on the printed side.
- ▨ Soldering side
- ▨ B + pattern
- ▩

PS-22 (POWER SUPPLY REGULATOR) **PS-23** (POWER SUPPLY REGULATOR) **TM-40** (TIMER CONTROL) **TM-41** (TONE INPUT SELECT TRACKING TIMER IN

A	B	C	D	E	F	G	H

– Ref. No. PS-22 BOARD: 6000 series, PS-23 BOARD: 6000 series, TM-40 BOARD: 7000 series, TM-41 BOARD: 8000 series, N BOARD: 9000 series –

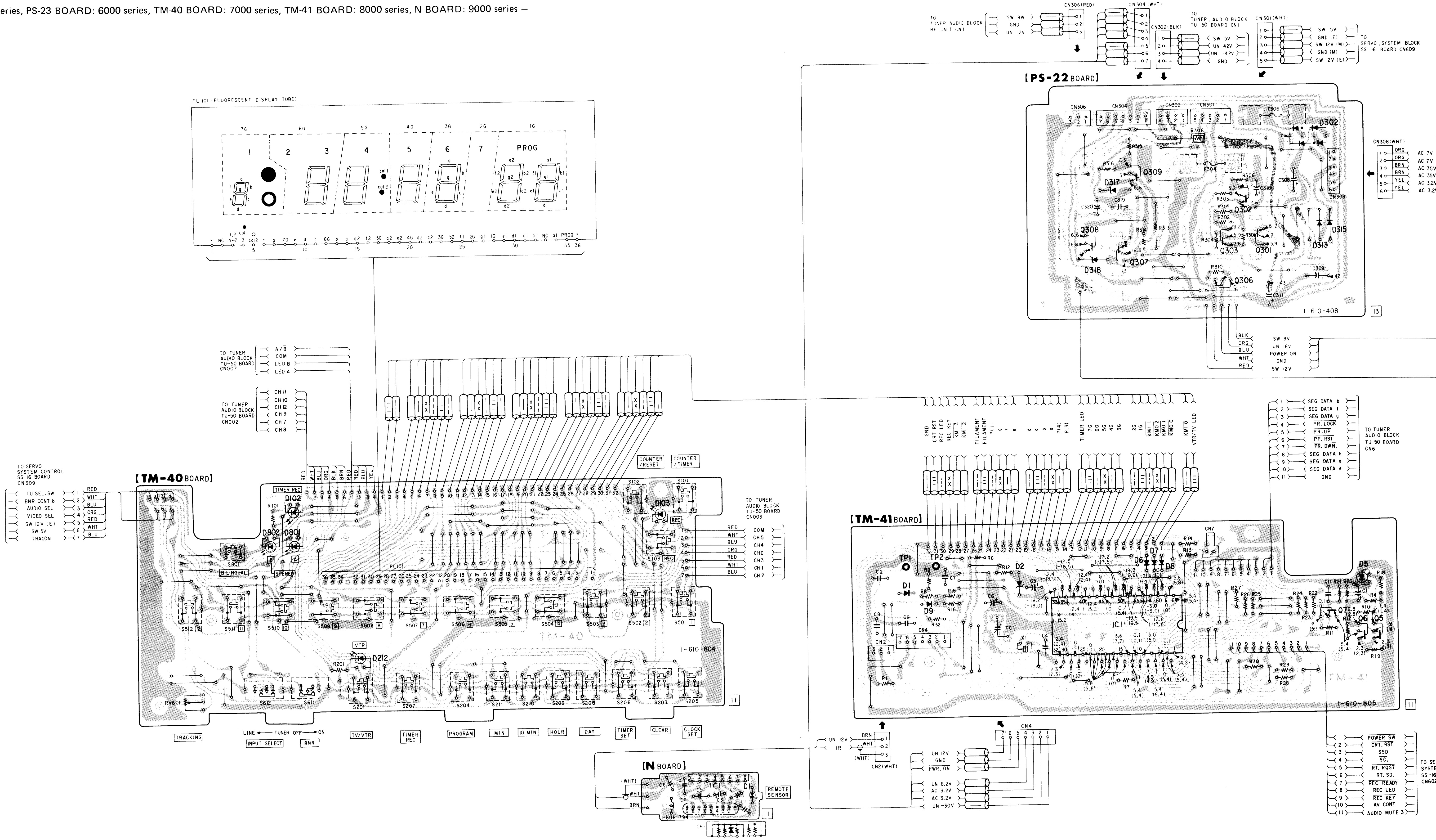

1
2
3
4
5
6
7
8
9
FL 101 (FLUORESCENT DISPLAY TUBE)
7G 6G 5G 4G 3G 2G 1G
1 2 3 4 5 6 7 PROG
col 1
col 2
TO TUNER AUDIO BLOCK TU-50 BOARD CN007
A/B̄
COM
LED B
LED A
TO TUNER AUDIO BLOCK TU-50 BOARD CN002
CH 11
CH 10
CH 12
CH 9
CH 7
CH 8
TO SERVO SYSTEM CONTROL SS-16 BOARD CN309
TU SEL. SW
BNR CONT b
AUDIO SEL
VIDEO SEL
SW 12V (E)
SW 5V
TRACON
RED
WHT
BLU
ORG
RED
WHT
BLU
[TM-40 BOARD]
RED
WHT
BLU
ORG
BLK
BRN
RED
BLU
YEL
TIMER REC
D102
R101
D802
D801
S801
BILINGUAL
B
A
STEREO
FL101
S512
S511
S510
S509
S508
S507
S506
S505
S504
VTR
D212
R201
RV601
S612
S611
S201
S207
S204
S211
S210
TRACKING
LINE ← TUNER OFF → ON
INPUT SELECT
BNR
TV/VTR
TIMER REC
PROGRAM
MIN
10 MIN

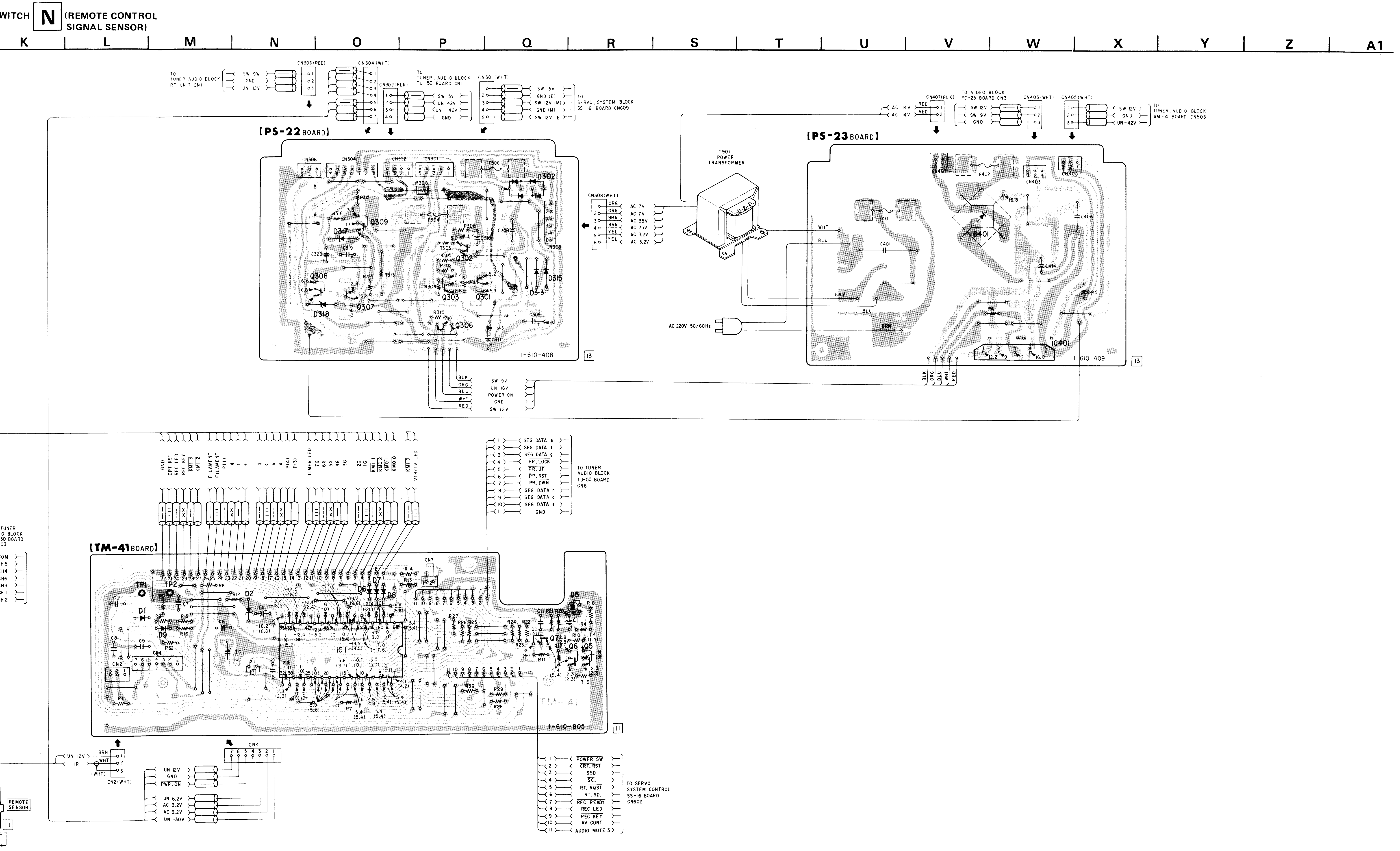
ER SUPPLY
LATOR)

PS-23 (POWER SUPPLY REGULATOR) **TM-40** (TIMER CONTROL) **TM-41** (TONE INPUT SELECT CHANNEL REC RESET TIMER PRESET SWITCH TRACKING TIMER INDICATOR) **N** (REMOTE CONTROL SIGNAL SENSOR)

B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R

RD: 6000 series, PS-23 BOARD: 6000 series, TM-40 BOARD: 7000 series, TM-41 BOARD: 8000 series, N BOARD: 9000 series –

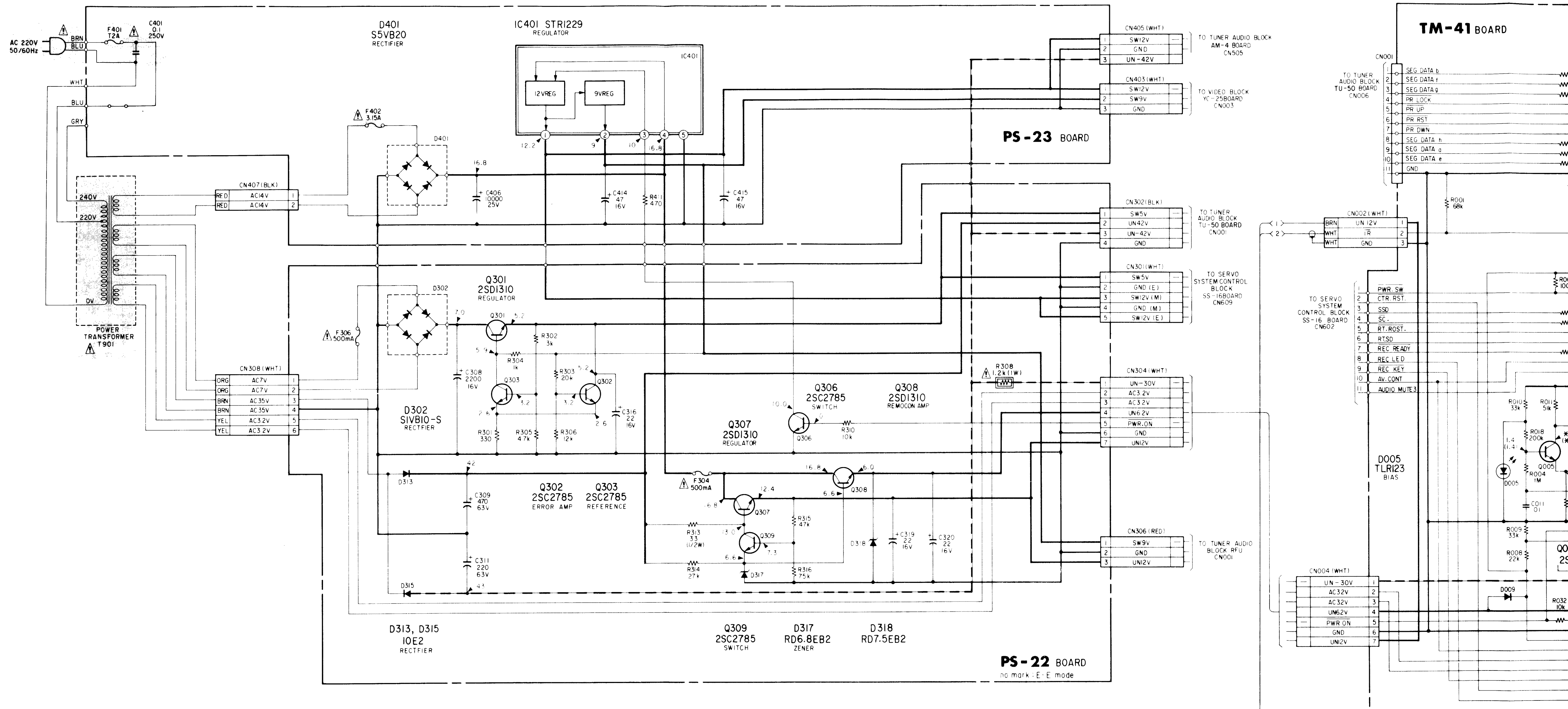

TO TUNER AUDIO BLOCK RF UNIT CN1
SW 9W
GND
UN 12V
CN306(RED)
CN304(WHT)
CN302(BLK)
TO TUNER, AUDIO BLOCK TU-50 BOARD CN1
SW 5V
UN 42V
UN -42V
GND
CN301(WHT)
SW 5V
GND (E)
SW 12V (M)
GND (M)
SW 12V (E)
TO SERVO, SYSTEM BLOCK SS-16 BOARD CN609
[PS-22 BOARD]
CN308(WHT)
ORG
BRN
YEL
AC 7V
AC 35V
AC 3.2V
Q302
Q309
Q308
Q307
Q303
Q301
Q306
D302
D317
D318
D315
D313
R308
F306
F304
1-610-408
13
BLK
BLU
WHT
RED
SW 9V
UN 16V
POWER ON
GND
SW 12V
FL 101 (FLUORESCENT DISPLAY TUBE)
7G
6G
5G
4G
3G
2G
1G
PROG
col 1
col 2
TO TUNER AUDIO BLOCK TU-50 BOARD CN007
A/B
COM
LED B
LED A
TO TUNER AUDIO BLOCK TU-50 BOARD CN002
CH11
CH10
CH12
CH9
CH7
CH8
TO SERVO SYSTEM CONTROL SS-16 BOARD CN309
TU SEL.SW
BNR CONT b
AUDIO SEL
VIDEO SEL
SW 12V (E)
SW 5V
TRACON
[TM-40 BOARD]
TIMER REC
D102
D103
D802
D801
S801
BILINGUAL
STEREO
COUNTER /RESET
COUNTER /TIMER
S102
S101
S103
REC
TO TUNER AUDIO BLOCK TU-50 BOARD CN003
COM
CH5
CH4
CH6
CH3
CH1
CH2
S512
S511
S510
S509
S508
S507
S506
S505
S504
S503
S502
S501
TM-40
1-610-804
VTR
D212
S612
S611
S201
S207
S204
S211
S210
S209
S208
S206
S203
S205
RV601
11
TRACKING
LINE ← TUNER OFF → ON
INPUT SELECT
BNR
TV/VTR
TIMER REC
PROGRAM
MIN
10 MIN
HOUR
DAY
TIMER SET
CLEAR
CLOCK SET
[N BOARD]
REMOTE SENSOR
1-606-794
UN 12V
IR
BRN
WHT
CN2(WHT)
[TM-41 BOARD]
GND
CRT RST
REC LED
REC KEY
KMI 3
KMI 2
FILAMENT
TIMER LED
KMO 2
KMO 1
KMO 0
KMI 0
VTR/TV LED
SEG DATA b
SEG DATA f
SEG DATA g
PR.LOCK
PR.UP
PR.RST
PR.DWN.
SEG DATA h
SEG DATA a
SEG DATA e
TO TUNER AUDIO BLOCK TU-50 BOARD CN6
TP1
TP2
IC1
CN7
CN4
CN2
D1
D2
D5
D6
D7
D8
D9
Q5
Q6
Q7
TC1
X1
TM-41
1-610-805
UN 12V
GND
PWR.ON
UN 6.2V
AC 3.2V
UN -30V
POWER SW
CRT.RST
SSD
SC.
RT.RQST
RT.SD.
REC READY
REC LED
REC KEY
AV CONT
AUDIO MUTE 3
TO SE SYSTE SS-16 CN602

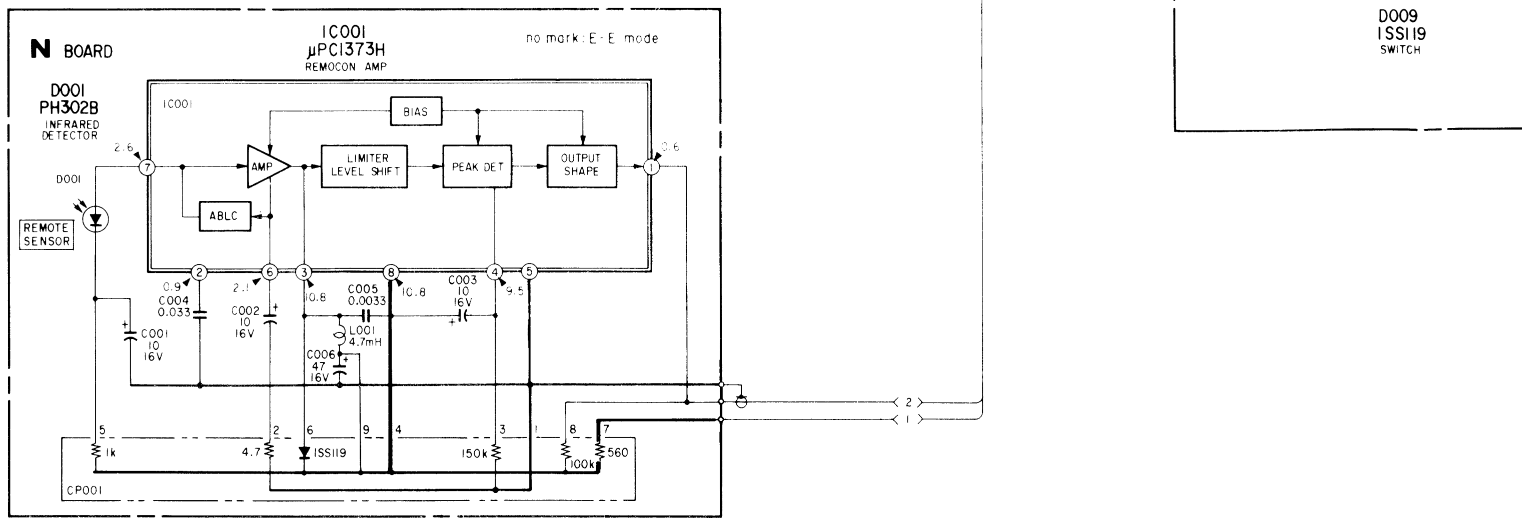

WITCH
N
(REMOTE CONTROL SIGNAL SENSOR)
K
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z
A1
CN306(RED)
CN304(WHT)
CN302(BLK)
CN301(WHT)
TO TUNER AUDIO BLOCK RF UNIT CN1
SW 9W
GND
UN 12V
TO TUNER, AUDIO BLOCK TU-50 BOARD CN1
SW 5V
UN 42V
UN -42V
GND
TO SERVO, SYSTEM BLOCK SS-16 BOARD CN609
GND (E)
SW 12V (M)
GND (M)
SW 12V (E)
[PS-22 BOARD]
CN308(WHT)
ORG
BRN
YEL
AC 7V
AC 35V
AC 3.2V
F306
F304
D302
Q309
D317
Q302
Q308
Q303
Q301
D315
D313
D318
Q307
Q306
R308
R310
C309
C311
1-610-408
13
BLK
ORG
BLU
WHT
RED
SW 9V
UN 16V
POWER ON
GND
SW 12V
T901 POWER TRANSFORMER
CN407(BLK)
AC 14V
TO VIDEO BLOCK YC-25 BOARD CN3
SW 12V
SW 9V
CN403(WHT)
CN405(WHT)
TO TUNER, AUDIO BLOCK AM-4 BOARD CN505
UN -42V
[PS-23 BOARD]
F402
F401
D401
C401
C406
C414
C415
R411
IC401
GRY
BLU
BRN
AC 220V 50/60Hz
1-610-409
SEG DATA b
SEG DATA f
SEG DATA g
PR. LOCK
PR. UP
PP. RST
PR. DWN.
SEG DATA h
SEG DATA a
SEG DATA e
TO TUNER AUDIO BLOCK TU-50 BOARD CN6
GND
CRT RST
REC LED
REC KEY
KMI 3
KMI 2
FILAMENT
P(1)
P(4)
P(3)
TIMER LED
KMO 2
KMO 1
KMO 0
KMI 0
VTR/TV LED
[TM-41 BOARD]
TP1
TP2
D1
D2
D5
D6
D7
D8
D9
IC1
X1
TC1
CN7
CN2
CN4
Q5
Q6
Q7
TM-41
1-610-805
11
UN 12V
IR
CN2(WHT)
UN 12V
GND
PWR. ON
UN 6.2V
AC 3.2V
UN -30V
REMOTE SENSOR
POWER SW
CRT. RST
SSD
SC.
RT. RQST
RT. SD.
REC READY
REC LED
REC KEY
AV CONT
AUDIO MUTE 3
TO SERVO SYSTEM CONTROL SS-16 BOARD CN602
TUNER
IO BLOCK
50 BOARD
03

POWER SUPPLY, TIMER POWER SUPPLY, TIMER

PS-22 (POWER SUPPLY REGULATOR) **PS-23** (POWER SUPPLY REGULATOR) **TM-40** (TONE IN PUT SELECT REC RESET CHANNEL TIMER PRESET SWITCH, TRACKING, TIMER INDICATOR) **TM-41** (TIMER CONTROL) **N** (REMOTE CONTROL SIGNAL SENSOR)

– Ref. No. PS-22 BOARD: 6000 series, PS-23 BOARD: 6000 series, TM-40 BOARD: 7000 series, TM-41 BOARD: 8000 series, N BOARD: 9000 series –


A B C D E F G H I J K L M N O P
1 2 3 4 5 6 7
AC 220V 50/60Hz
BRN BLU WHT BLU GRY
F401 T2A
C401 0.1 250V
POWER TRANSFORMER T901
240V 220V 0V
D401 S5VB20 RECTIFIER
F402 3.15A
C406 10000 25V
IC401 STR1229 REGULATOR
12VREG 9VREG
C414 47 16V
R411 470
C415 47 16V
CN407 (BLK) RED AC14V RED AC14V
CN308 (WHT) ORG AC7V ORG AC7V BRN AC35V BRN AC35V YEL AC3.2V YEL AC3.2V
F306 500mA
D302 S1VB10-S RECTIFIER
Q301 2SD1310 REGULATOR
C308 2200 16V
R301 330 R302 3k R303 20k R304 1k R305 4.7k R306 12k
C316 22 16V
Q302 2SC2785 ERROR AMP
Q303 2SC2785 REFERENCE
C309 470 63V
C311 220 63V
D313 D315
D313, D315 10E2 RECTFIER
Q306 2SC2785 SWITCH
Q307 2SD1310 REGULATOR
Q308 2SD1310 REMOCON AMP
Q309 2SC2785 SWITCH
R308 1.2k (1W)
R310 10k
R313 33 (1/2W)
R314 27k
R315 47k
R316 75k
F304 500mA
C319 22 16V
C320 22 16V
D317 RD6.8EB2 ZENER
D318 RD7.5EB2
PS-23 BOARD
PS-22 BOARD
no mark : E-E mode
CN405 (WHT) SW12V GND UN-42V
TO TUNER AUDIO BLOCK AM-4 BOARD CN505
CN403 (WHT) SW12V SW9V GND
TO VIDEO BLOCK YC-25BOARD CN003
CN302 (BLK) SW5V UN42V UN-42V GND
TO TUNER AUDIO BLOCK TU-50 BOARD CN001
CN301 (WHT) SW5V GND (E) SW12V (M) GND (M) SW12V (E)
TO SERVO SYSTEM CONTROL BLOCK SS-16BOARD CN609
CN304 (WHT) UN-30V AC3.2V AC3.2V UN6.2V PWR.ON GND UN12V
CN306 (RED) SW9V GND UN12V
TO TUNER AUDIO BLOCK RFU CN001
TM-41 BOARD
CN001
TO TUNER AUDIO BLOCK TU-50 BOARD CN006
SEG DATA b SEG DATA f SEG DATA g PR LOCK PR UP PR RST PR DWN SEG DATA h SEG DATA a SEG DATA e GND
R001 68k
CN002 (WHT) BRN UN 12V WHT IR WHT GND
TO SERVO SYSTEM CONTROL BLOCK SS-16 BOARD CN602
PWR. SW CTR. RST. SSD SC. RT. ROST. RT.SD REC READY REC LED REC KEY AV. CONT AUDIO MUTE3
D005 TLR123 BIAS
R010 33k R011 51k R018 200k R004 1M R009 33k R008 22k R032 10k
Q005
C011 .01
D009
CN004 (WHT) UN-30V AC3.2V AC3.2V UN6.2V PWR ON GND UN12V

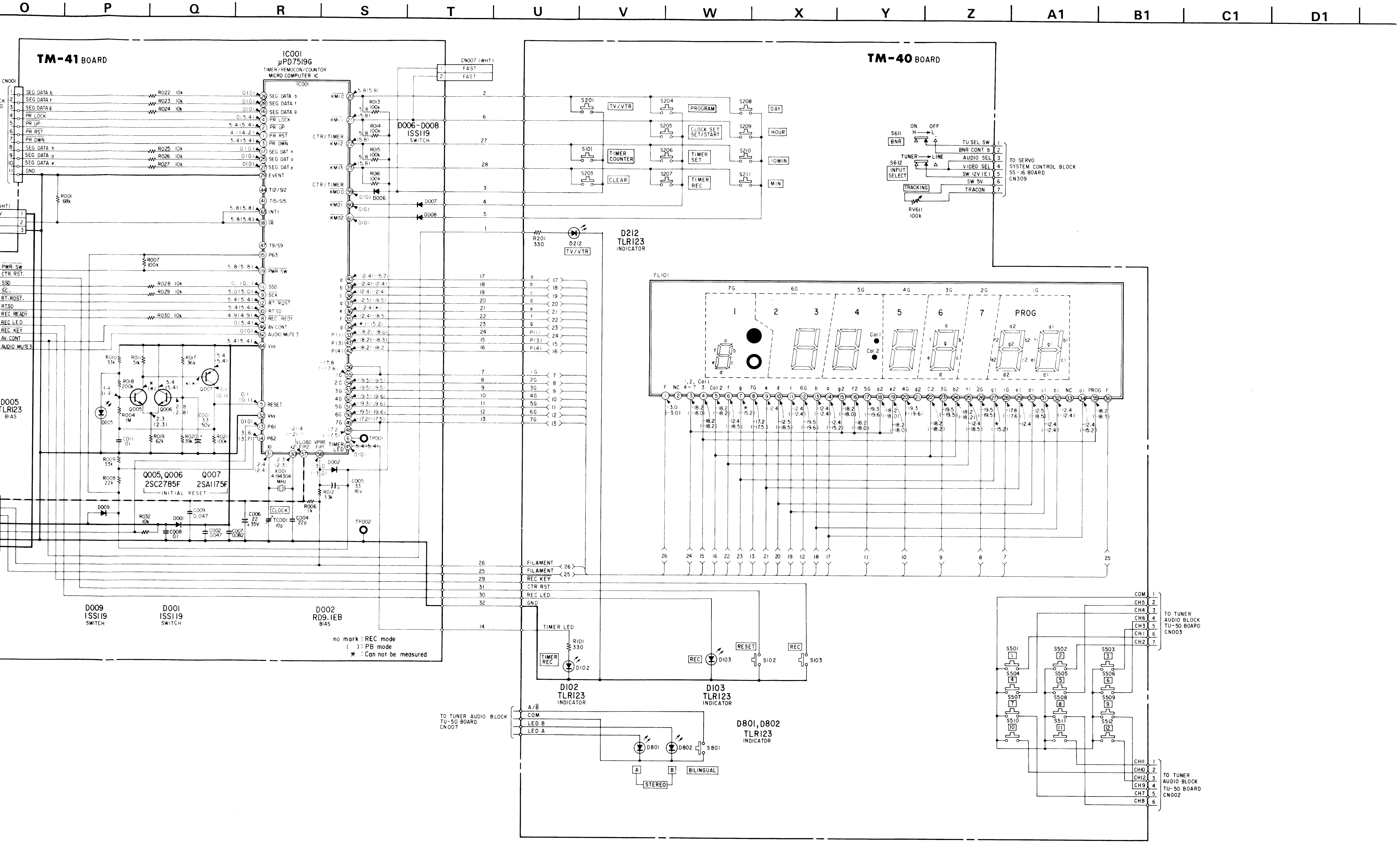

D009 1SS119 SWITCH
N BOARD
IC001 μPC1373H REMOCON AMP
no mark : E-E mode
D001 PH302B INFRARED DETECTOR
D001
REMOTE SENSOR
IC001
BIAS
AMP
LIMITER LEVEL SHIFT
PEAK DET
OUTPUT SHAPE
ABLC
C004 0.033
C002 10 16V
C005 0.0033
C003 10 16V
C001 10 16V
L001 4.7mH
C006 47 16V
1k 4.7 1SS119 150k 100k 560
CP001

- All resistors are in ohms, 1/6W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted. 50V or less are not indicated except for electrolytic capacitors.
- All variable and semi-fixed resistors have characteristic curve B, unless otherwise noted.
- ▨ : Nonflammable resistor
- ⏛ : Fusible resistor
- ——— : B + bus.
- – – – : B – bus.
- The voltage value is a reference value between the grounding when the color bar signal is received from a color bar generator.

The voltage value is measured using a digital tester (10MΩ).

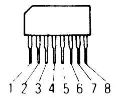
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

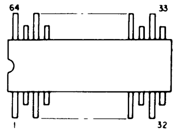

O
P
Q
R
S
T
U
V
W
X
Y
Z
A1
B1
C1
D1
TM-41 BOARD
IC001
µPD75I9G
TIMER/REMOCON/COUNTOR MICRO COMPUTER IC
CN007 (WHT)
FAST
D006-D008
ISS119
SWITCH
SEG DATA b
SEG DATA f
SEG DATA g
PR LOCK
PR UP
PR RST
PR DWN
SEG DATA h
SEG DATA a
SEG DATA e
GND
EVENT
INT1
IR
PWR SW
SSD
SCK
RT RQST
RT SD
REC READY
AV CONT
AUDIO MUTE 3
Vdd
RESET
Vss
X001
4.194304 MHz
CLOCK
TP001
TP002
D005
TLR123
BIAS
Q005, Q006
2SC2785F
Q007
2SA1175F
INITIAL RESET
D009
ISS119
SWITCH
D001
ISS119
SWITCH
D002
RD9.1EB
BIAS
no mark : REC mode
( ) : PB mode
* : Can not be measured
TM-40 BOARD
S201
TV/VTR
S204
PROGRAM
S208
DAY
S205
CLOCK SET SET/START
S209
HOUR
S101
TIMER COUNTER
S206
TIMER SET
S210
10MIN
S203
CLEAR
S207
TIMER REC
S211
MIN
D212
TLR123
INDICATOR
S611
BNR
S612
INPUT SELECT
TRACKING
RV611
100k
TU SEL SW
BNR CONT b
AUDIO SEL
VIDEO SEL
SW 12V (E)
SW 5V
TRACON
TO SERVO SYSTEM CONTROL BLOCK SS-16 BOARD CN309
FL101
PROG
FILAMENT
REC KEY
CTR RST
REC LED
TIMER LED
D102
TLR123
INDICATOR
D103
TLR123
INDICATOR
RESET
REC
S102
S103
TO TUNER AUDIO BLOCK TU-50 BOARD CN007
A/B
COM
LED B
LED A
D801
D802
S801
D801, D802
TLR123
INDICATOR
STEREO
BILINGUAL
TO TUNER AUDIO BLOCK TU-50 BOARD CN003
TO TUNER AUDIO BLOCK TU-50 BOARD CN002
S501
S502
S503
S504
S505
S506
S507
S508
S509
S510
S511
S512

SEMICONDUCTORS

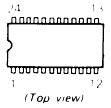
µPC1391H CX20008
µPC1373 CX20061
CX7926



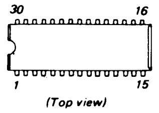
µPD7519G



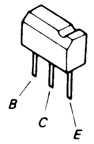
CX864
CX867
CX868
CX869A


24
13
1
12
(Top view)

M54836AP


30
16
1
15
(Top view)

2SA874
2SA881
2SC2673



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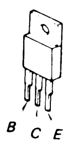
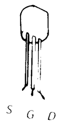
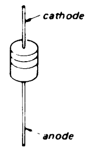
2SC1826
2SC1827



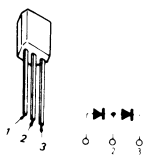
2SK107
2SK105A



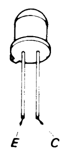
1SS119
1SS148


cathode
anode

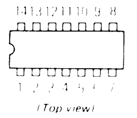
MC931



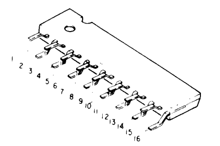
US1035



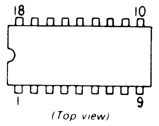
µPC324C MB84013B
µPD4013BC MB84069UB
TDA4944 TC4013BP
HD14069UBP TC4069UBP
MB3614



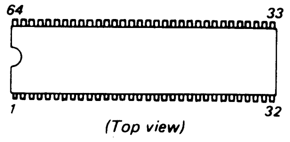
BA3402



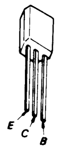
CX882
TDA2546A
LA7040


18
10
1
9
(Top view)

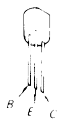
MB88421


64
33
1
32
(Top view)

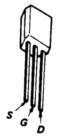
2SA1048
2SA1115
2SC403SP
2SC2458
2SC2603



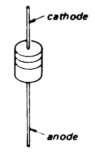
2SC2009



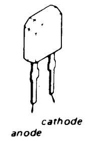
2SK381



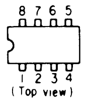
1SS120


cathode
anode

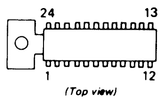
PH302B


anode
cathode

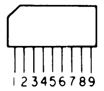
µPC358C
µPC4558C
BA4558
HA17558
HZT33-02
NJM4558D
NJM4562D-D
RC4558P
RC4558PD


8 7 6 5
1 2 3 4
(Top view)

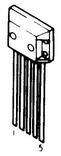
CX134A
CX135


24
13
1
12
(Top view)

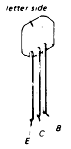
CX894
TA7320P



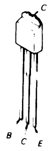
STR1229



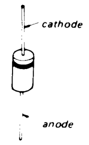
2SA1175
2SC2785


letter side
E C B

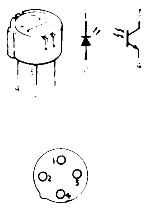
2SD1164



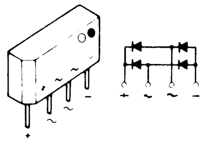
EQA02-02RK
EQA02-05F
EQA02-06A
EQA02-06C
EQA02-06D
EQA02-06E
EQA02-07A
EQA02-08A
EQA02-09A
EQA02-09B
EQA02-09C
EQA02-09D
EQA02-10A
EQA02-10B
EQA02-12A
EQA02-12B
EQA02-13A
EQA02-13AB5
10E-2
GP08D


cathode
anode

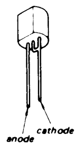
GP-2S02A
GP-2S02B
GP-2S02C



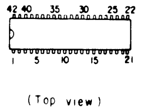
S1VB10-S
S1VB20



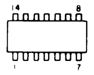
µPC574J


anode
cathode

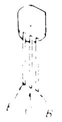
CX194B-0
CX194B-5


42 40 35 30 25 22
1 5 10 15 21
(Top view)

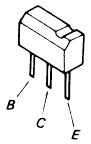
CX7945



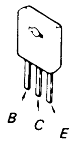
2SA772 2SC1475
2SB739 2SD788
2SB740 2SD789
2SC1474



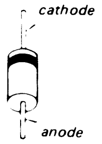
2SA1184



2SD1310



1N4148H
1S1555
1S2076
1S2473
1SS133
1SS206
RD5.6EB1
RD5.6EB2
RD5.6EB3
RD6.2E-B
RD6.8EB2
RD7.5EB1
RD7.5EB2
RD7.5EB3
RD8.2E-B1
RD8.2EB2
RD9.1E-B
RD10EB1
RD10EB2
RD12EL1
RD12EL2
RD12EL3
RD13E-B
RD13EB1
RD13EB2
RD13EB3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anode

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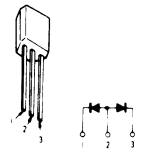

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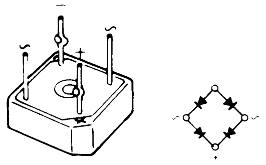

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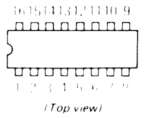
TA7607AP
TC4053BP



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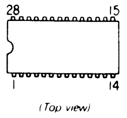
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(Top view)

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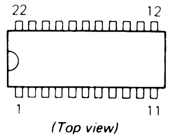
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(Top view)

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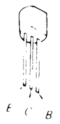

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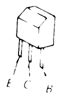

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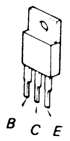

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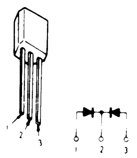

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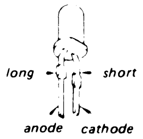
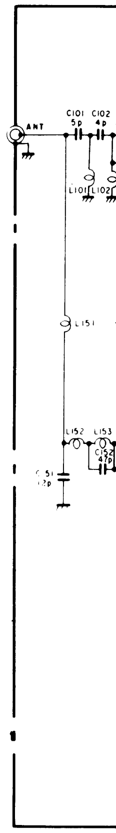

long
short
anode
cathode

VHF/UHF
- BT-881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L153
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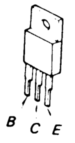

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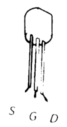
2SK105A



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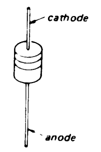
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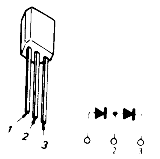

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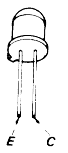

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2458
2603

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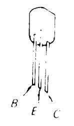

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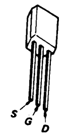

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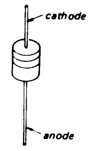
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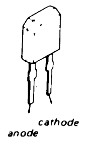
PH302B


cathode
anode

EQA02-02RK
EQA02-05F
EQA02-06A
EQA02-06C
EQA02-06D
EQA02-06E
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EQA02-08A
EQA02-09A
EQA02-09B
EQA02-09C
EQA02-09D
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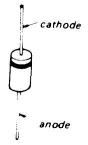
10E-2
GP08D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anode

175
785

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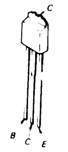

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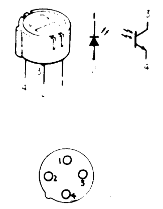
GP-2S02B
GP-2S02C



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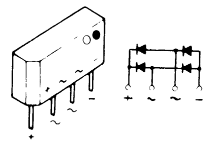
S1VB20



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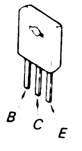
2SD1310



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1S2473
1SS133
1SS206
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RD5.6EB2
RD5.6EB3
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RD6.8EB2
RD7.5EB1
RD7.5EB2
RD7.5EB3
RD8.2E-B1
RD8.2EB2
RD9.1E-B
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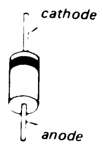
RD12EL3
RD13E-B
RD13EB1
RD13EB2
RD13EB3


cathode
anode

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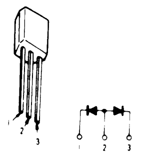

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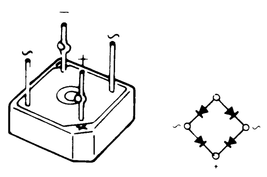

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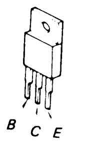

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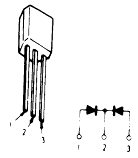

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TLR123
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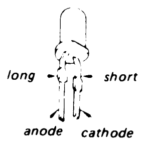
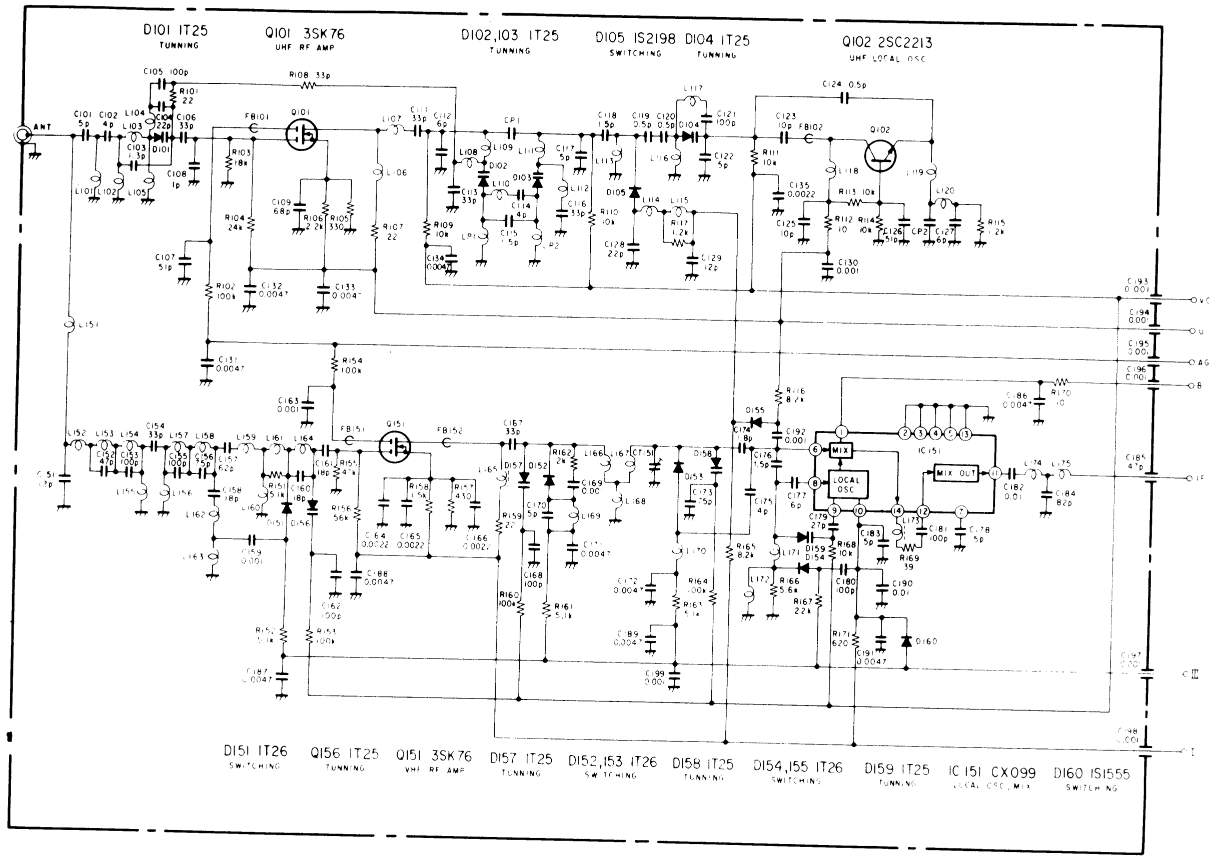

long
short
anode
cathode

VHF/UHF TUNER SCHEMATIC DIAGRAM

- BT-881


D101 1T25
TUNNING
Q101 3SK76
UHF RF AMP
D102,103 1T25
TUNNING
D105 1S2198
SWITCHING
D104 1T25
TUNNING
Q102 2SC2213
UHF LOCAL OSC
ANT
MIX
LOCAL OSC
MIX OUT
IC151
AGC
D151 1T26
SWITCHING
Q156 1T25
TUNNING
Q151 3SK76
VHF RF AMP
D157 1T25
TUNNING
D152,153 1T26
SWITCHING
D158 1T25
TUNNING
D154,155 1T26
SWITCHING
D159 1T25
TUNNING
IC151 CX099
LOCAL OSC MIX
D160 1S1555
SWITCHING

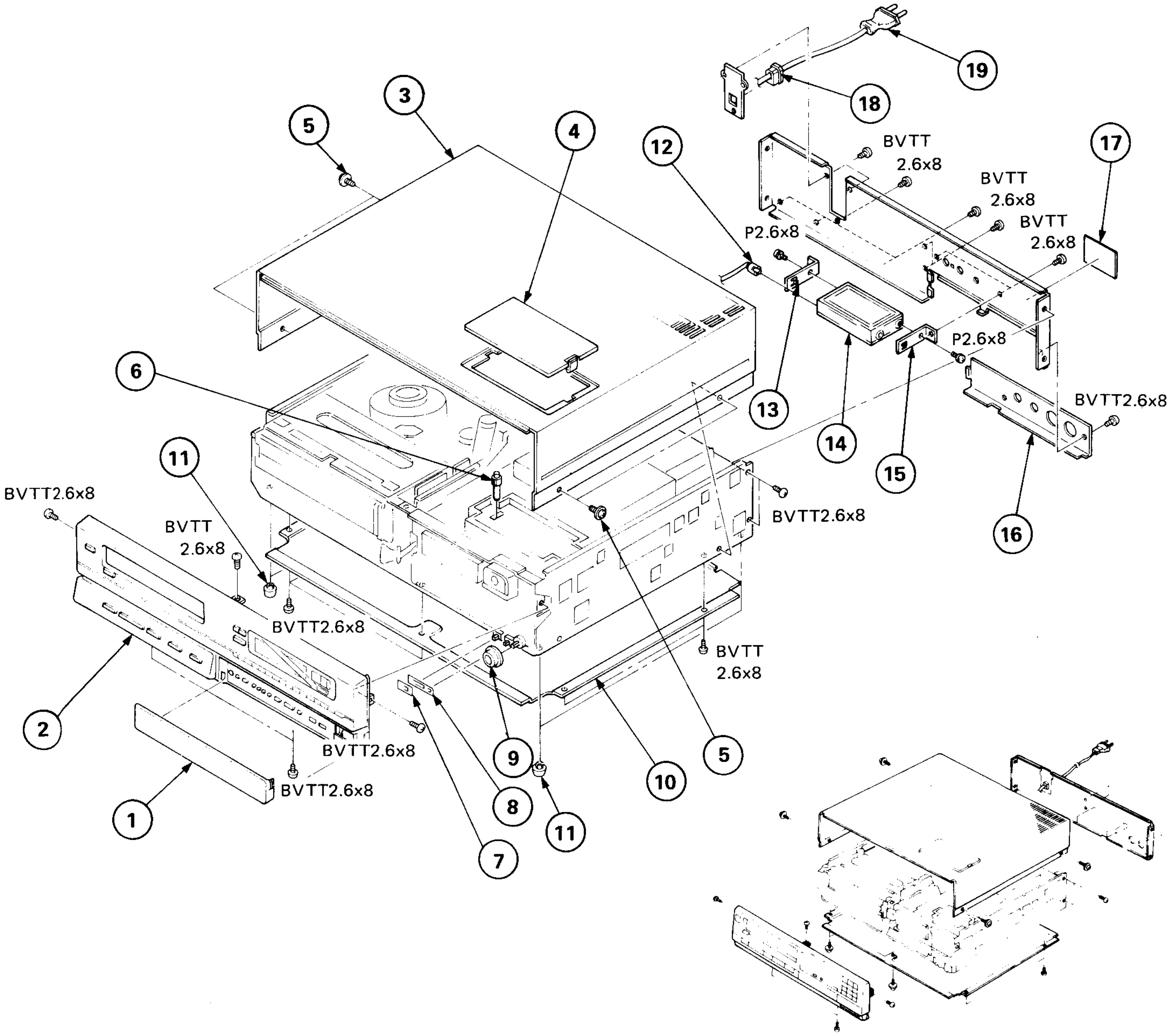
SECTION 4
EXPLODED VIEW

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

1. FRONT PANEL AND CABINET ASSEMBLIES



19
18
3
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4
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BVTT
2.6x8
BVTT
2.6x8
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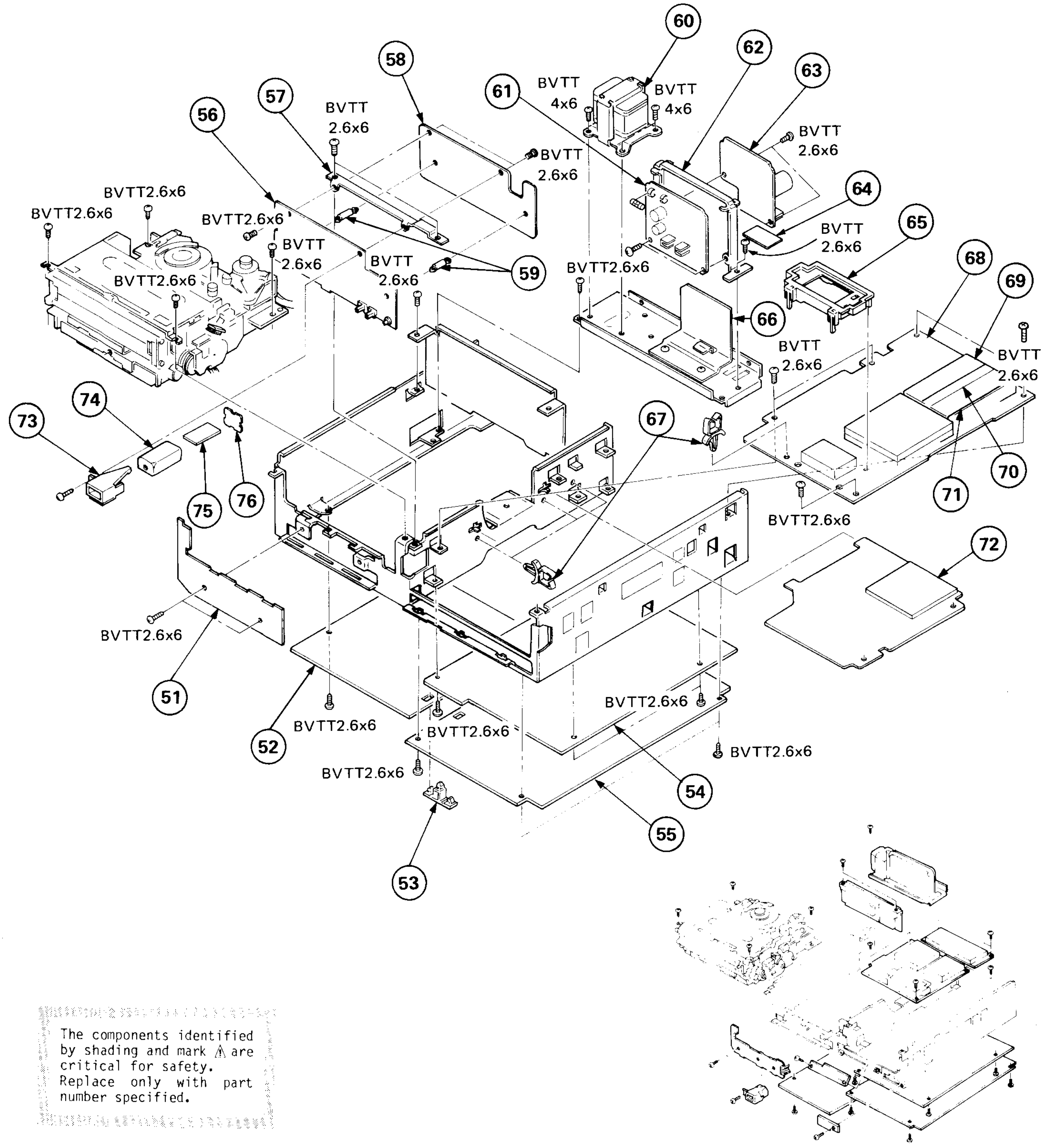
BVTT
2.6x8
P2.6x8
P2.6x8
6
13
14
15
BVTT2.6x8
16
11
BVTT2.6x8
BVTT
2.6x8
BVTT2.6x8
BVTT2.6x8
BVTT
2.6x8
2
BVTT2.6x8
BVTT2.6x8
9
5
10
1
8
11
7

No.	Part No.	Description	Remark
1	X-3682-403-0	DOOR ASSY, FRONT	
2	A-6703-365-A	PANEL BLOCK ASSY, FRONT	1
3	X-3682-408-0	CASE ASSY, UPPER	
4	X-3682-405-0	DOOR ASSY, PRESET	
5	3-703-354-01	SCREW (OS), CASE, CLAW	
6	3-681-186-00	KNOB, TUNING	
7	♦:3-682-417-00	PLATE (B), BLIND, SWITCH	
8	♦:3-682-416-00	PLATE (A), BLIND, SWITCH	
9	3-682-414-00	KNOB, TRACK CONTROL	
10	3-681-152-00	PLATE, BOTTOM	
11	3-670-155-00	LEG	
12	♦:1-556-934-00	CABLE, PIN	
13	♦:3-681-102-00	BRACKET (LEFT), RBM	
14	⚠.1-464-270-12	BOOSTER, RF MODULATOR(RFU-808)	
15	♦:3-681-101-00	BRACKET (RIGHT), RBM	
16	♦:3-681-114-21	PANEL, CONNECTOR	
17	3-682-403-00	LABEL, MODEL NUMBER	
18	⚠.3-703-244-02	BUSHING, CORD	
19	⚠.1-534-817-12	POWER CORD	

2. TUNER, TIMER AND POWER ASSEMBLIES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BVTT 2.6x6
64
BVTT2.6x6
BVTT2.6x6
BVTT2.6x6
BVTT 2.6x6
BVTT 2.6x6
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BVTT 2.6x6
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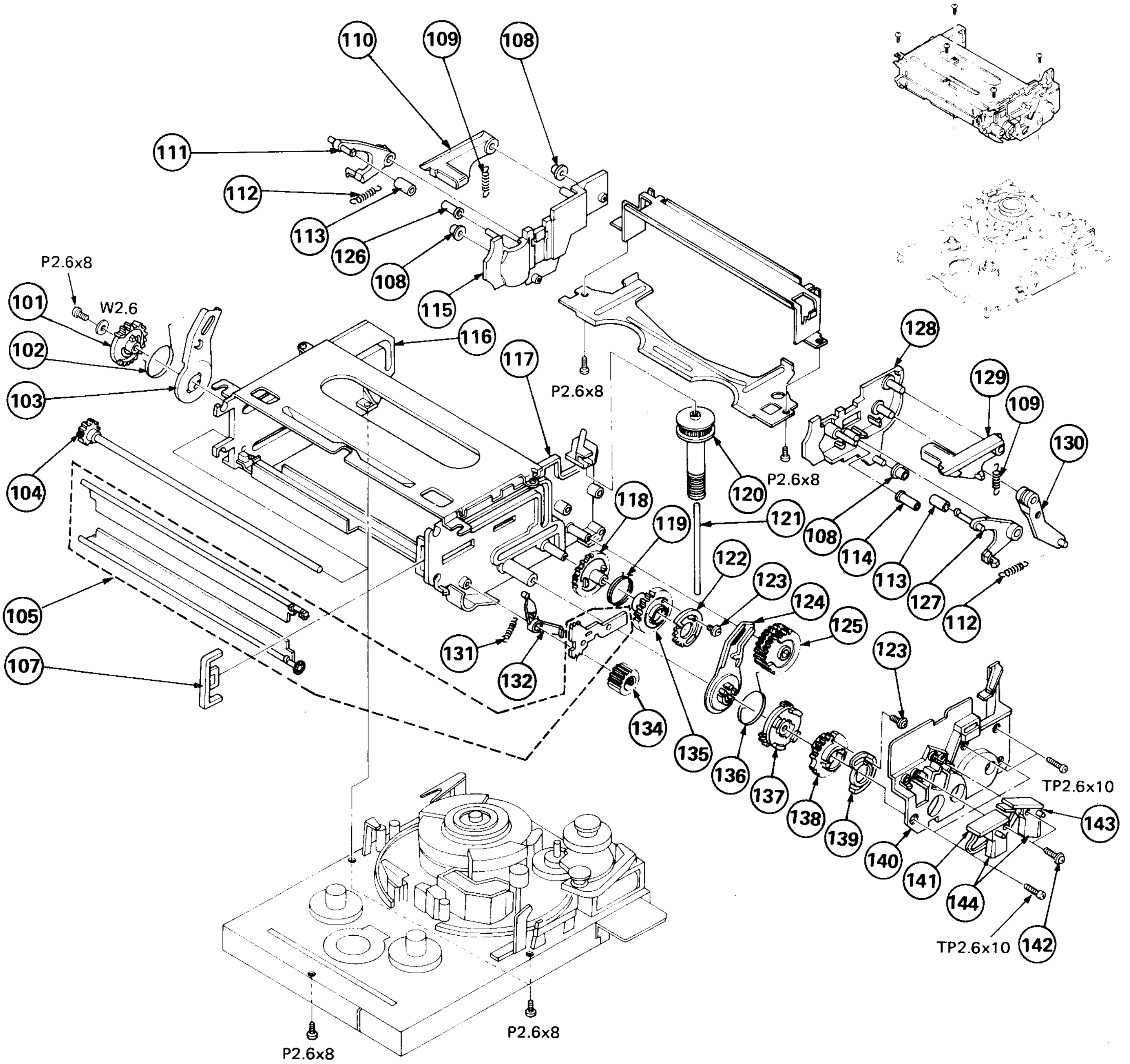
BVTT2.6x6
BVTT2.6x6
52
BVTT2.6x6
BVTT2.6x6
BVTT2.6x6
54
55
53

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

No.	Part No.	Description	Remark
51	♠:1-610-806-00	FU-15 BOARD	
52	♠:A-6711-443-A	RY-1 BOARD, COMPLETE	
53	♠:3-681-184-00	HOLDER, PC BOARD	
54	♠:A-6715-187-A	SS-16 BOARD, COMPLETE	
55	♠:A-6711-477-A	YC-25 BOARD, COMPLETE	
56	♠:1-610-804-00	TM-40 BOARD	
57	♠:3-682-423-00	BRACKET	
58	♠:1-610-805-00	TM-41 BOARD	
59	♠:3-682-419-00	HOLDER, P.C.B	
60	⚠1-447-614-11	TRANSFORMER, POWER	
61	♠:A-6728-871-A	PS-22 BOARD, COMPLETE	
62	♠:3-681-144-00	BRACKET, POWER PC BOARD	
63	♠:1-610-409-00	PS-23 BOARD	
64	3-681-112-00	SHEET, RADIATION	
65	3-681-146-00	COVER, PRESET	
66	3-681-116-00	HEAT SINK	
67	♠:3-655-214-00	CLIP, CABLE	
68	♠:A-6721-182-A	TU-50 BOARD, COMPLETE	
69	⚠1-463-350-12	TUNER (BT-881)	
70	♠:3-681-220-00	BAND, RETAINER, TUNER	
71	♠:1-611-042-00	PC BOARD, MT-7	
72	♠:A-6713-182-A	AM-4 BOARD, COMPLETE	
73	♠:3-682-425-00	HOLDER, CATCHER, RAY	
74	♠:4-342-117-00	CASE, SHIELD (MAIN), R	
75	♠:1-606-794-00	N BOARD	
76	♠:4-342-118-00	LID, SHIELD CASE, R	

3. FRONT LOADING ASSEMBLY



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W2.6
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129
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130
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P2.6x8
121
118
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122
123
124
125
123
107
131
132
134
135
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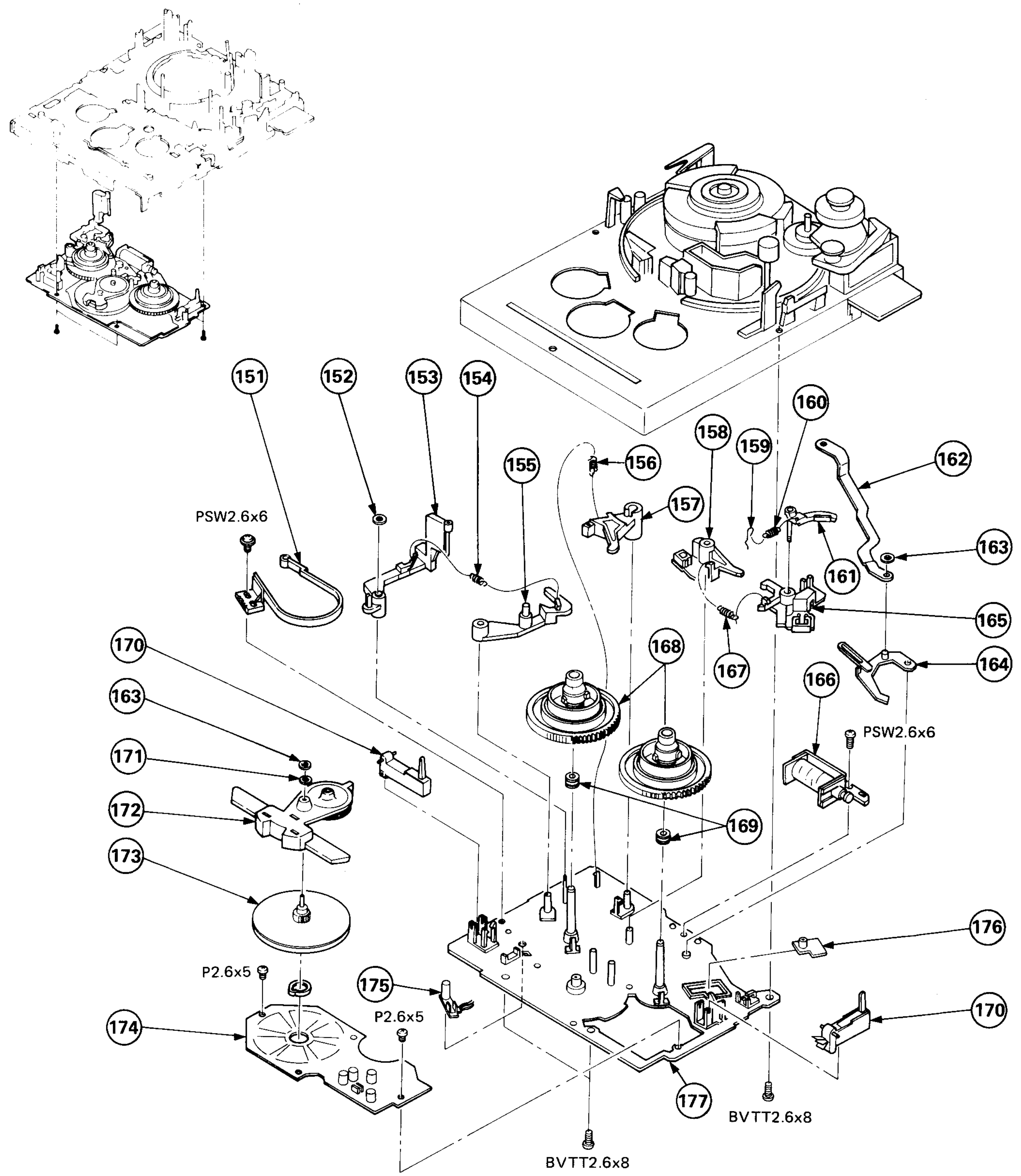
137
138
139
140
141
144
142
143
TP2.6x10
TP2.6x10
P2.6x8
P2.6x8

No.	Part No.	Description	Remark
101	3-679-226-00	GEAR (LEFT), ARM, DRIVING	
102	3-679-145-00	SPRING (LEFT)	
103	3-679-220-00	ARM (LEFT), DRIVING	
104	X-3679-105-0	SHAFT ASSY, GEAR, MIDWAY	
105	A-6751-183-A	KIT, FL DOOR	
107	3-679-137-00	HOLDER, OUTER DOOR	
108	3-679-143-00	ROLLER	
109	3-679-188-00	SPRING, TENSION	
110	3-679-132-00	LEVER (LEFT), PREVENTION	
111	3-679-130-00	LEVER (LEFT), RETAINER, CASSETTE	
112	3-679-288-00	SPRING, TENSION	
113	3-679-135-00	RUBBER, RETAINER, CASSETTE	
114	3-679-128-00	ROLLER (RIGHT), DRIVING	
115	♠:X-3679-107-0	PLATE ASSY, SIDE, BASE LEFT	
116	♠:3-679-266-00	PLATE, SIDE, LEFT	
117	♠:3-679-265-00	PLATE, SIDE, RIGHT	
118	3-679-217-04	GEAR (A), LIMITER	
119	3-679-139-00	SPRING	
120	3-679-215-00	GEAR, WORM	
121	3-679-123-00	SHAFT, GEAR, WORM	
122	3-679-124-00	CAM (CASSETTE OFF)	

No.	Part No.	Description	Remark
123	3-669-480-00	+ PTPWH 2	
124	3-679-219-00	ARM (RIGHT), DRIVING	
125	3-679-216-00	WHEEL, WORM	
126	3-679-316-00	ROLLER (LEFT), DRIVING	
127	3-679-129-00	LEVER(RIGHT), RETAINER, CASSETTE	
128	♠:X-3679-106-0	PLATE ASSY, SIDE, BASE RIGHT	
129	3-679-131-00	LEVER (RIGHT), PREVENTION	
130	3-679-133-00	ARM, LID OPEN	
131	3-679-189-00	SPRING, TENSION	
132	3-679-134-00	ARM, SWITCHING, DOOR	
134	3-679-126-00	GEAR (RIGHT), MIDWAY	
135	3-679-218-00	GEAR (B), LIMITER	
136	3-679-144-00	SPRING (RIGHT)	
137	3-679-225-00	GEAR (RIGHT), ARM, DRIVING	
138	3-679-125-00	GEAR, DRIVING	
139	3-679-138-00	CAM (CASSETTE ON)	
140	♠:3-679-214-00	HOLDER, GEAR, WORM	
141	♠:1-609-227-00	CS-3 BOARD	
142	3-669-480-21	+ PTPWH 2	
143	♠:1-609-228-00	CS-4 BOARD	
144	1-554-241-00	SWITCH, LEVER	

4. REEL TABLE ASSEMBLY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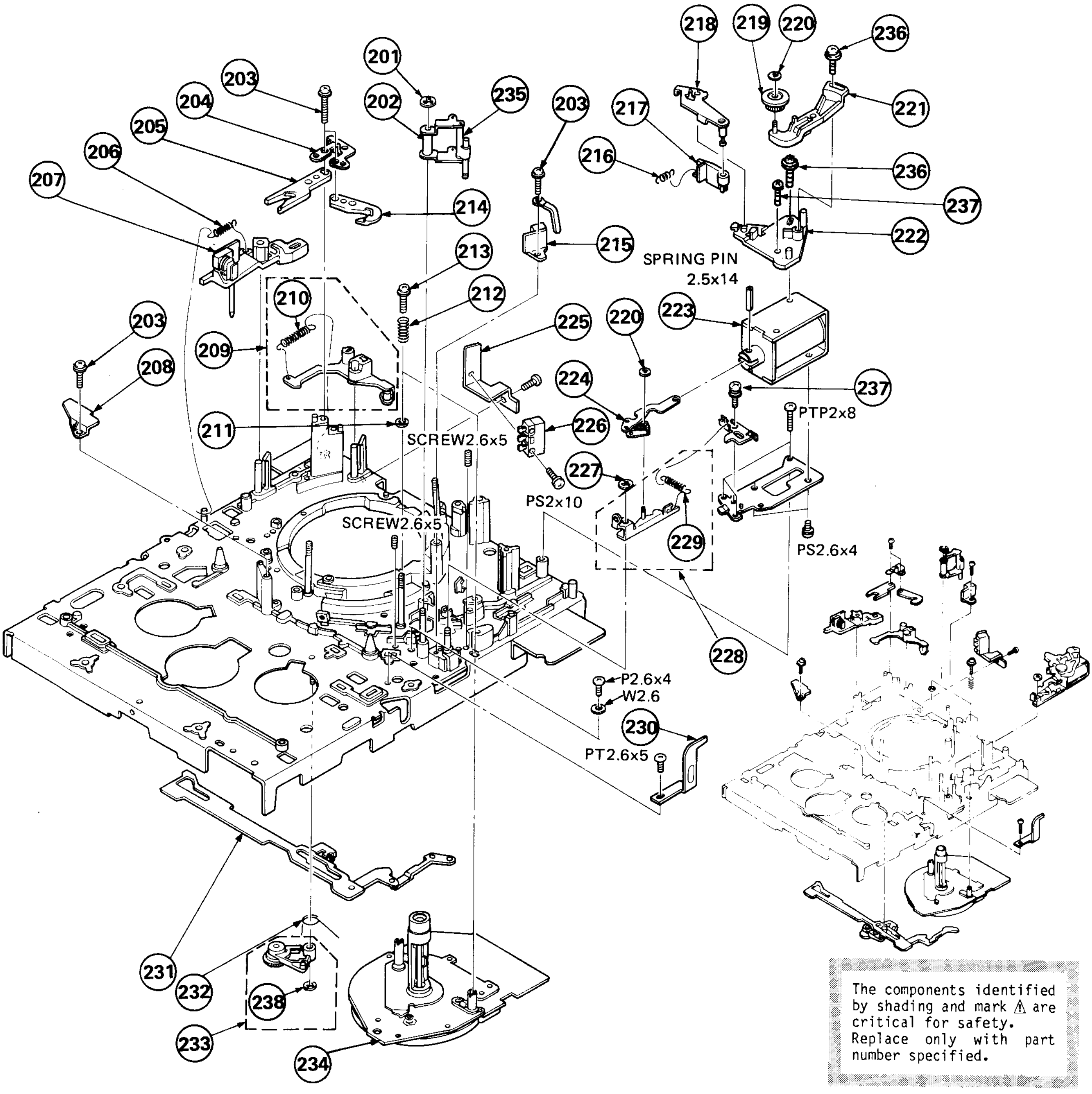
PSW2.6x6
PSW2.6x6
P2.6x5
P2.6x5
BVTT2.6x8
BVTT2.6x8

No.	Part No.	Description	Remark
151	X-3679-120-0	BAND ASSY, TENSION REGULATOR	
152	3-669-465-00	WASHER (1.5), STOPPER	
153	X-3679-122-0	LEVER ASSY, TENSION REGULATOR	
154	3-679-156-00	SPRING, TENSION	
155	♦:3-679-230-00	LEVER, FUNCTION	
156	3-679-151-00	SPRING, TENSION	
157	♦:3-679-231-00	LEVER, BRAKE, SOFT	
158	X-3679-117-0	BRAKE ASSY, S	
159	♦:3-681-163-00	HOOK, SPRING, REWIND	
160	3-681-156-00	SPRING, TENSION	
161	♦:X-3681-105-0	ARM ASSY, REWIND BRAKE	
162	♦:3-679-168-00	JOINT, BRAKE, L	
163	3-669-595-00	WASHER (2), STOPPER	
164	X-3679-119-0	ARM ASSY, STOPPER, PENDULUM	
165	X-3679-118-0	BRAKE ASSY, T	
166	⚠ 1-454-348-31	SOLENOID, BRAKE PLUNGER	
167	3-679-190-00	SPRING, TENSION	
168	X-3681-104-0	TABLE ASSY, S REEL	
169	3-646-185-00	BEARING	
170	1-554-374-00	SWITCH, LEVER	
171	3-679-318-00	WASHER, PENDULUM ARM	
172	A-6759-074-G	ARM BLOCK ASSY, PENDULUM	
173	X-2622-201-0	ROTOR ASSY, R	
174	♦:A-4910-021-A	R STATOR BOARD, COMPLETE	
175	♦:1-610-401-00	RD-6 BOARD	
176	♦:1-610-402-00	RD-7 BOARD	

5. CHASSIS ASSEMBLY (1)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222
215
213
SPRING PIN
2.5x14
212
210
225
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224
237
208
PTP2x8
211
226
SCREW2.6x5
227
PS2x10
229
SCREW2.6x5
PS2.6x4
228
P2.6x4
W2.6
230
PT2.6x5
231
232
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233
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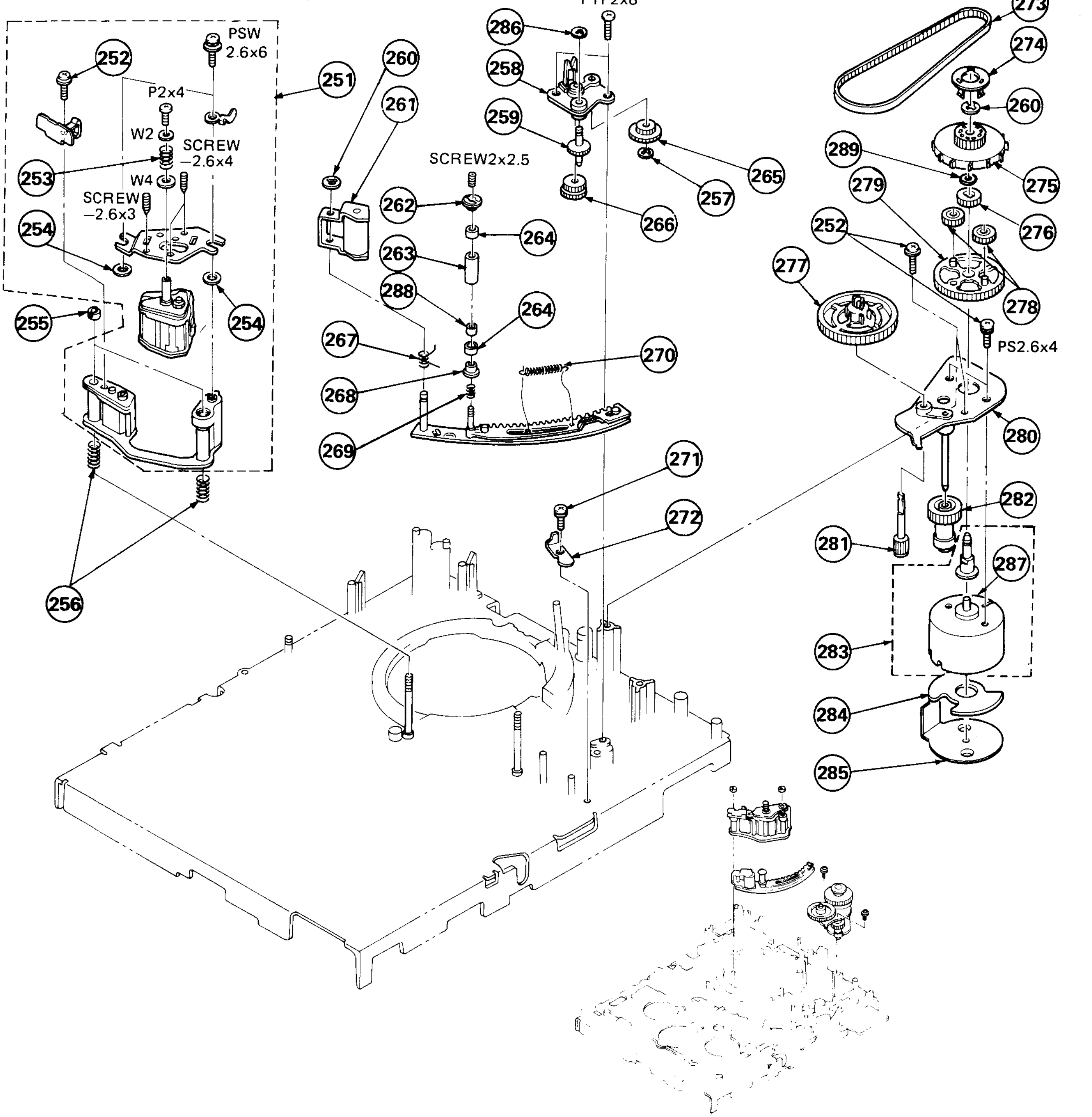
The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

No.	Part No.	Description	Remark
201	3-669-596-00	WASHER (2.3), STOPPER	
202	•:X-3679-108-0	ARM ASSY, PRESS, PINCH	
203	3-669-480-11	+ PTPWH 2	
204	•:3-672-540-00	PLATE, GROUND, TAPE GUIDE	
205	•:3-669-618-00	PLATE (2), ADJUST	
206	3-679-164-00	SPRING, TENSION	
207	1-464-249-21	SENSOR, S COIL	
208	•:3-669-476-04	PLATE, GUIDE	
209	X-3679-149-0	ARM (B) ASSY, LOCK	210
210	3-679-323-00	SPRING, TENSION	
211	3-669-697-00	SPACER, CAPSTAN	
212	3-679-359-00	SPRING, COMPRESSION	
213	3-669-633-00	SCREW, + PW2	
214	•:3-672-507-00	PLATE (3-1), ADJUSTMENT	
215	1-464-250-00	SENSOR, T COIL	
216	3-508-108-XX	SPRING, TENSION	
217	•:3-679-251-00	LIMITER, STOPPER	
218	•:X-3679-123-0	ARM ASSY, STOPPER	
219	3-679-307-00	GEAR, TENSION	
220	3-669-465-00	WASHER (1.5), STOPPER	
221	•:X-3679-145-0	ARM ASSY, CAR, TENSION	
222	•:3-679-117-05	CHASSIS, ARM, STOPPER	
223	⚠1-454-349-00	SOLENOID, PLUNGER	
224	X-3679-152-0	ARM (B) ASSY, PINCH SOLENOID	
225	•:3-672-542-00	BRACKET, SWITCH, LE	
226	1-553-539-00	SWITCH, MICRO	
227	3-669-595-00	WASHER (2), STOPPER	
228	•:X-3669-379-0	ARM (P) ASSY, PINCH LIMITER	229
229	3-465-159-XX	SPRING, TENSION	
230	•:3-679-163-00	PLATE, LID OPEN	
231	X-3681-106-0	LEVER ASSY, SLIDE	
232	3-681-154-00	SPRING, TORSION	
233	X-3681-107-0	ARM ASSY, REVIEW BRAKE	238
234	8-838-048-00	MOTOR, DC (BHF-1908A)	
235	•:X-3679-110-0	LINK ASSY, JOINT, PRESS ARM	
236	3-669-607-00	+PSW (SMALL ROUND) 2.6	
237	3-669-607-31	+PSW (SMALL ROUND) (2.6)	
238	3-701-436-11	WASHER, 1.6	

6. CHASSIS ASSEMBLY (2)


PSW
2.6x6
252
P2x4
W2
SCREW
−2.6x4
W4
SCREW
−2.6x3
251
253
254
255
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256
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261
SCREW2x2.5
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PTP2x8
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PS2.6x4
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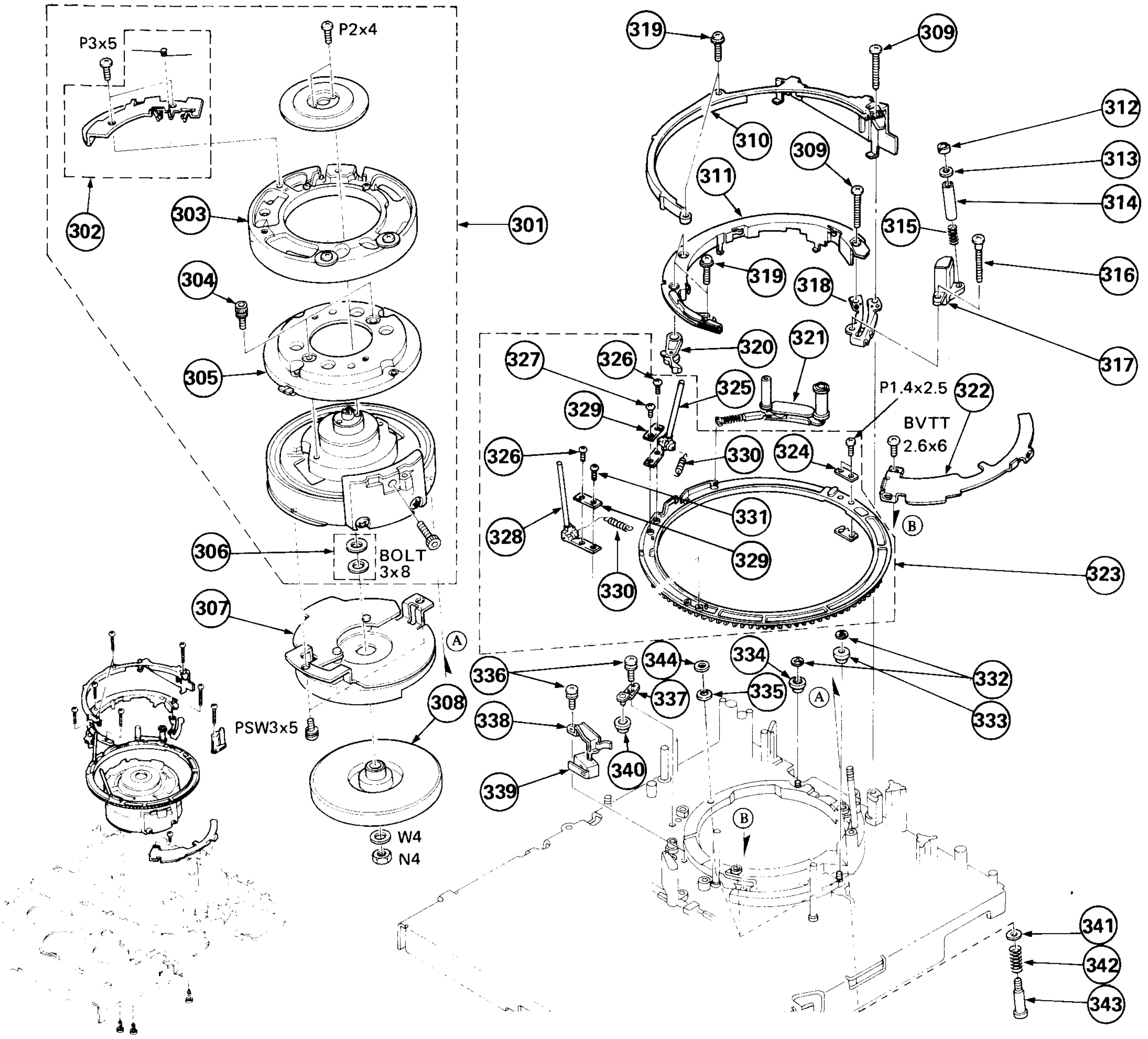
No.	Part No.	Description	Remark
251	A-6761-064-A	ACE ASSY	252,253,254
252	3-669-480-11	+ PTPWH 2	
253	3-669-316-00	SPRING, COMPRESSION	
254	3-669-598-00	WASHER, CTL	
255	3-669-318-00	NUT, ADJUSTMENT, GUIDE	
256	3-669-317-00	SPRING, COMPRESSION	
257	3-669-465-00	WASHER (1.5), STOPPER	
258	X-3679-147-0	CHASSIS (B) ASSY, DRIVE GEAR	
259	X-3679-148-0	GEAR (F) ASSY (B)	
260	3-669-596-00	WASHER (2.3), STOPPER	
261	X-3669-307-6	ARM ASSY, PINCH ROLLER	
262	3-669-431-00	FLANGE (UPPER), GUIDE	
262	3-669-452-00	SPRING, COMPRESSION	
263	3-669-438-00	ROLLER, GUIDE	
264	3-669-443-00	BEARING, BALL (NO FLANGE)	
265	3-669-337-00	GEAR (D)	
266	3-669-338-00	GEAR (E)	
267	3-669-444-00	SPRING, TORSION	
268	3-669-432-00	FLANGE (LOWER), GUIDE	
270	3-549-014-00	SPRING, TENSION	
271	3-669-607-31	+PSW (SMALL ROUND) 2.6	
272	♦:3-679-165-00	STOPPER, SLIDER	
273	3-679-119-00	BELT, SYNCHRO	
274	3-679-140-00	FLANGE, GEAR, INTERNAL	
275	3-679-101-00	GEAR, INTERNAL	
276	3-679-104-00	GEAR	
277	3-679-115-00	GEAR (LARGE), LOADING	
278	X-3679-124-2	GEAR ASSY, PLANET	
279	X-3679-111-0	CARRIER ASSY	
280	♦:X-3679-112-0	CHASSIS ASSY, GEAR, PLANET	
281	3-679-114-00	GEAR (SMALL), LOADING	
282	X-3669-321-0	GEAR (C) ASSY	
283	A-6737-118-A	MOTOR ASSY, L	287
284	♦:1-605-071-00	LM-8 BOARD	
285	♦:3-669-613-00	INSULATOR, L MOTOR	
286	3-669-595-00	WASHER (2), STOPPER	
287	1-541-163-00	MOTOR	
288	3-657-841-31	SPACER (2X2.5)	
289	3-701-439-11	WASHER	

7. DRUM AND S LOADING ASSEMBLIES


P3x5
P2x4
302
303
301
304
305
306
BOLT 3x8
307
PSW3x5
308
W4
N4
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P1.4x2.5
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BVTT 2.6x6
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No.	Part No.	Description	Remark
301	A-6050-201-A	DRUM ASSY (DSH-40A-R)	302,303,304,305,306
302	A-6760-066-B	SPRING ASSY, TAPE RETAINER	
303	A-6760-138-A	DRUM ASSY, UPPER	
304	3-669-157-00	BOLT (WASHER) (2.6X8)	
305	A-6762-136-A	DISK ASSY	
306	X-2621-204-2	SPACER BLOCK ASSY	
307	X-2621-204-0	STATOR ASSY, D	
308	X-2621-202-0	ROTOR ASSY, D	
309	3-669-466-00	SCREW (M 2.6)	
310	♠:3-669-585-00	GUIDE (2), SHUTTLE	
311	♠:3-679-290-00	GUIDE (1-YA), SHUTTLE	
312	3-669-446-00	NUT, GUIDE, NO.6	
313	3-669-447-00	FLANGE, GUIDE, NO.6	
314	3-669-445-00	SPACER, GUIDE, NO.6	
315	3-669-615-00	SPRING, COMPRESSION	
316	3-669-606-00	SCREW (2.6)	
317	8-825-508-10	HEAD, FE	
318	♠:X-3669-313-0	BASE ASSY, SLANT	
319	3-669-480-11	+ PTPWH 2	
320	X-3669-327-0	ARM ASSY, SWITCH, ULE	
321	A-6750-108-B	SHUTTLE BLOCK ASSY, THREADING	
322	♠:3-669-477-00	LINER, LINK, PIN	
323	X-3679-150-0	RING (YA) ASSY, S LOADING	324,325,326 327,328,329 330,331

No.	Part No.	Description	Remark
324	♠:3-669-616-00	RETAINER	
325	♠:X-3669-430-0	HOLDER BLOCK ASSY, #3 GUIDE	
326	3-669-478-00	SCREW (1X3), TAPPING	
327	3-669-479-11	SCREW (1.4X3.5), TAPPING	
328	♠:X-3669-429-0	HOLDER BLOCK ASSY, #2 GUIDE	
329	♠:3-669-472-02	RETAINER, SPRING, LEAF	
330	3-672-583-00	SPRING	
331	3-672-586-00	SCREW (1.4X3), TAPPING	
332	3-669-465-00	WASHER (1.5), STOPPER	
333	3-669-597-00	ROLLER (B), RING	
334	3-669-630-00	ROLLER (C), RING	
335	♠:3-669-646-11	SPACER, DRUM	
336	3-669-607-31	+PSW (SMALL ROUND) 2.6	
337	♠:X-3669-329-0	PLATE ASSY, ADJUSTMENT	
338	♠:3-669-355-00	HOLDER, SWITCH, ULE	
339	1-553-718-00	SWITCH, MICRO	
340	3-669-360-00	ROLLER, RING	
341	3-669-600-11	WASHER, FLAT (3.5)	
342	3-429-123-00	SPRING	
343	3-669-302-00	SCREW, FITTING	
344	♠:3-669-646-00	SPACER, DRUM	

8. HARDWARE LIST

SCREW

7-621-759-35	+PSW, 2.6X5
7-621-759-45	+PSW, 2.6X6
7-621-259-32	SCREW +P 2.6X5
7-621-259-35	SCREW +P 2.6X5
7-627-551-08	SCREW, PRECISION +P 1.4X1.6
7-627-551-28	SCREW, PRECISION +P 1.4X2.5
7-628-253-45	SCREW +PS 2X10
7-628-253-95	SCREW +PS 2.6X4
7-628-254-15	SCREW +PS 2.6X6
7-685-134-11	SCREW +P 2.6X8 TYPE2 NON-SLIT
7-685-135-11	SCREW +P 2.6X10 TYPE2 NON-SLIT
7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S
7-685-791-01	SCREW +PTT 2.6X5 (S)
7-685-861-09	SCREW +BVTT 2.6X5 (S)
7-685-862-01	SCREW +BVTT 2.6X6 (S)
7-685-863-01	SCREW +BVTT 2.6X8 (S)
7-685-880-01	SCREW +BVTT 4X6 (S)

SET-SCREW

7-621-712-26	SET-SCREW, SLOT 2.6X3FLAT POINT
7-621-712-35	SET-SCREW, SLOT 2.6X4CONE POINT
7-621-712-46	SET-SCREW, SLOT 2.6X5FLAT POINT

NUT

7-622-205-05	N 2, TYPE 2

SPRING PIN

7-626-302-31	SPRING PIN, 2.5X14

TAPPING

7-685-105-11	TPG +P 2X8, TYPE 2, NON-SLIT

WASHER

7-688-002-11	W 2.6, MIDDLE
7-688-004-01	W 4, SMALL

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

- =>: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

CAPACITORS
- MF : μF, PF : μμF

RESISTORS
- All resistors are in ohms
- F : nonflammable

COILS
- MMH : mH, UH : μH

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description			Remark
	♠:A-4910-021-A	R STATOR BOARD, COMPLETE *************************			(REEL MOTOR BOARD)
	♠:1-560-460-00	PIN, CONNECTOR 4P			
		CAPACITOR			
C1	1-123-821-41	ELECT	47MF	20%	16V
C2	1-123-821-41	ELECT	47MF	20%	16V
C3	1-123-821-41	ELECT	47MF	20%	16V
C4	1-123-821-41	ELECT	47MF	20%	16V
		DIODE			
D1	8-719-941-48	DIODE 1N4148TP			
		IC			
IC1	8-759-108-77	IC CX-877			
		TRANSISTOR			
Q1	8-729-100-01	TRANSISTOR 2SD992			
Q2	8-729-100-01	TRANSISTOR 2SD992			
Q3	8-729-100-01	TRANSISTOR 2SD992			
Q4	8-729-100-01	TRANSISTOR 2SD992			
Q5	8-729-100-01	TRANSISTOR 2SD992			
Q6	8-729-100-01	TRANSISTOR 2SD992			
		RESISTOR			
R1	1-247-823-00	CARBON	470	5%	1/6W
R2	1-247-823-00	CARBON	470	5%	1/6W
R3	1-247-823-00	CARBON	470	5%	1/6W
R4	1-247-829-00	CARBON	820	5%	1/6W
R5	1-247-871-00	CARBON	47K	5%	1/6W
R6	1-247-871-00	CARBON	47K	5%	1/6W
R7	1-247-871-00	CARBON	47K	5%	1/6W
R8	1-247-871-00	CARBON	47K	5%	1/6W
		DIODE			
S1	8-719-810-31	DIODE THS103-1			
S2	8-719-810-31	DIODE THS103-1			

****

Ref.No.	Part No.	Description			Remark
	♠:A-6711-443-A	RY-1 BOARD, COMPLETE ********************			
	♠:3-681-177-00	CASE (MAIN), SHIELD, RY			
	♠:3-681-178-00	LID, UPPER, SHIELD CASE, RY			
	♠:3-681-179-00	LID, BOTTOM, SHIELD CASE, RY			
		CAPACITOR			
C001	1-161-021-00	CERAMIC	0.047MF	10%	25V
C002	1-123-330-00	ELECT	22MF	20%	16V
C003	1-161-021-00	CERAMIC	0.047MF	10%	25V
C004	1-161-021-00	CERAMIC	0.047MF	10%	25V
C005	1-161-021-00	CERAMIC	0.047MF	10%	25V
C006	1-123-305-00	ELECT	33MF	20%	10V
C007	1-123-380-00	ELECT	1MF	20%	50V
C008	1-123-380-00	ELECT	1MF	20%	50V
C009	1-101-004-00	CERAMIC	0.01MF		50V
C010	1-161-021-00	CERAMIC	0.047MF	10%	25V
C011	1-161-013-00	CERAMIC	0.01MF	10%	25V
C012	1-123-330-00	ELECT	22MF	20%	16V
C013	1-161-013-00	CERAMIC	0.01MF	10%	25V
C014	1-161-019-00	CERAMIC	0.033MF	10%	25V
C015	1-102-973-00	CERAMIC	100PF	5%	50V
C016	1-161-021-00	CERAMIC	0.047MF	10%	25V
C017	1-161-021-00	CERAMIC	0.047MF	10%	25V
C018	1-123-381-00	ELECT	2.2MF	20%	50V
C019	1-161-021-00	CERAMIC	0.047MF	10%	25V
C020	1-161-017-00	CERAMIC	0.022MF	10%	25V
C021	1-123-356-00	ELECT	10MF	20%	16V
C022	1-102-951-00	CERAMIC	15PF	5%	50V
C023	1-102-951-00	CERAMIC	15PF	5%	50V
C024	1-161-013-00	CERAMIC	0.01MF	10%	25V
C026	1-161-013-00	CERAMIC	0.01MF	10%	25V
C027	1-123-356-00	ELECT	10MF	20%	16V
C028	1-161-017-00	CERAMIC	0.022MF	10%	25V
C029	1-161-017-00	CERAMIC	0.022MF	10%	25V
C030	1-161-013-00	CERAMIC	0.01MF	10%	25V
C031	1-161-025-00	CERAMIC	0.1MF	10%	25V
C032	1-161-013-00	CERAMIC	0.01MF	10%	25V
C035	1-101-005-00	CERAMIC	0.022MF		50V
C036	1-123-318-00	ELECT	33MF	20%	16V
C037	1-102-851-00	CERAMIC	15PF	5%	50V
C038	1-161-025-00	CERAMIC	0.1MF	10%	25V
C039	1-102-981-00	CERAMIC	300PF	5%	50V
C040	1-102-981-00	CERAMIC	300PF	5%	50V
C041	1-102-976-00	CERAMIC	180PF	5%	50V
C044	1-102-515-00	CERAMIC	24PF	5%	50V
C045	1-161-025-00	CERAMIC	0.1MF	10%	25V
C046	1-161-021-00	CERAMIC	0.047MF	10%	25V
C047	1-161-021-00	CERAMIC	0.047MF	10%	25V
C048	1-101-005-00	CERAMIC	0.022MF		50V
C049	1-123-318-00	ELECT	33MF	20%	16V
C051	1-123-318-00	ELECT	33MF	20%	16V
C052	1-101-005-00	CERAMIC	0.022MF		50V
C053	1-101-005-00	CERAMIC	0.022MF		50V
C054	1-102-112-00	CERAMIC	330PF	10%	50V
C055	1-101-006-00	CERAMIC	0.047MF		50V
C056	1-102-112-00	CERAMIC	330PF	10%	50V
C057	1-102-948-00	CERAMIC	11PF	5%	50V
C058	1-102-112-00	CERAMIC	330PF	10%	50V
C059	1-123-328-00	ELECT	4.7MF	20%	25V
C060	1-102-119-00	CERAMIC	0.0015MF	10%	50V
C061	1-101-004-00	CERAMIC	0.01MF		50V
C062	1-123-318-00	ELECT	33MF	20%	16V
C063	1-101-006-00	CERAMIC	0.047MF		50V
C065	1-161-013-00	CERAMIC	0.01MF	10%	25V

RY-1

Ref.No.	Part No.	Description			Remark
C066	1-101-005-00	CERAMIC	0.022MF		50V
C067	1-161-013-00	CERAMIC	0.01MF	10%	25V
C068	1-161-013-00	CERAMIC	0.01MF	10%	25V
C069	1-161-013-00	CERAMIC	0.01MF	10%	25V
C070	1-123-356-00	ELECT	10MF	20%	16V
C071	1-101-004-00	CERAMIC	0.01MF		50V
C073	1-102-511-00	CERAMIC	13PF	5%	50V
C074	1-102-522-00	CERAMIC	51PF	5%	50V
C075	1-102-522-00	CERAMIC	51PF	5%	50V
C076	1-102-511-00	CERAMIC	13PF	5%	50V
C077	1-101-006-00	CERAMIC	0.047MF		50V
C078	1-123-356-00	ELECT	10MF	20%	16V
C079	1-123-307-00	ELECT	100MF	20%	10V
C080	1-123-380-00	ELECT	1MF	20%	50V
C083	1-123-296-00	ELECT	220MF	20%	6.3V
C084	1-123-296-00	ELECT	220MF	20%	6.3V
C085	1-102-511-00	CERAMIC	13PF	5%	50V
C086	1-102-522-00	CERAMIC	51PF	5%	50V
C087	1-102-522-00	CERAMIC	51PF	5%	50V
C088	1-102-511-00	CERAMIC	13PF	5%	50V
C092	1-102-529-00	CERAMIC	100PF	5%	50V
C093	1-123-332-00	ELECT	47MF	20%	16V
C094	1-101-004-00	CERAMIC	0.01MF		50V
C096	1-123-356-00	ELECT	10MF	20%	16V
C097	1-101-005-00	CERAMIC	0.022MF		50V
C098	1-123-318-00	ELECT	33MF	20%	16V
C099	1-123-328-00	ELECT	4.7MF	20%	25V
C100	1-102-519-00	CERAMIC	36PF	5%	50V
C101	1-102-529-00	CERAMIC	100PF	5%	50V
C103	1-102-508-00	CERAMIC	10PF	0.5PF	50V
C105	1-101-005-00	CERAMIC	0.022MF		50V
C106	1-123-328-00	ELECT	4.7MF	20%	25V
C107	1-102-976-00	CERAMIC	180PF	5%	50V
C108	1-102-823-00	CERAMIC	430PF	5%	50V
C109	1-102-821-00	CERAMIC	360PF	5%	50V
C111	1-102-851-00	CERAMIC	15PF	5%	50V
C113	1-101-059-00	CERAMIC	510PF	5%	50V
C115	1-123-328-00	ELECT	4.7MF	20%	25V
C117	1-101-006-00	CERAMIC	0.047MF		50V
C118	1-102-958-00	CERAMIC	20PF	5%	50V
C119	1-102-958-00	CERAMIC	20PF	5%	50V
C122	1-101-006-00	CERAMIC	0.047MF		50V
C123	1-102-513-00	CERAMIC	18PF	5%	50V
C124	1-102-958-00	CERAMIC	20PF	5%	50V
C125	1-102-958-00	CERAMIC	20PF	5%	50V
C126	1-102-114-00	CERAMIC	470PF	10%	50V

CONNECTOR

Ref.No.	Part No.	Description
CN001♦:	1-508-848-00	PIN, CONNECTOR 6P
CN002♦:	1-564-030-00	PIN, CONNECTOR 5P
CN003♦:	1-564-028-00	PIN, CONNECTOR 3P

DIODE

Ref.No.	Part No.	Description	Remark
D001	8-719-911-19	DIODE 1SS119	
D002	8-719-911-19	DIODE 1SS119	
D003	8-719-911-19	DIODE 1SS119	
D004	8-719-911-19	DIODE 1SS119	
D005	8-719-000-12	DIODE MC931	
D007	8-719-911-19	DIODE 1SS119	
D008	8-719-911-19	DIODE 1SS119	
D010	8-719-911-19	DIODE 1SS119	
D011	8-719-911-19	DIODE 1SS119	
D012	8-719-100-69	DIODE RD13EB3	

DELAY LINE

Ref.No.	Part No.	Description
DL001	1-415-312-00	DELAY LINE (1H)

IC

Ref.No.	Part No.	Description
IC001	8-758-620-00	IC CX-862
IC002	8-751-340-00	IC CX-134A
IC003	8-759-608-64	IC CX-864
IC004	8-751-350-00	IC CX-135

COIL

Ref.No.	Part No.	Description
L001	1-408-429-00	MICRO INDUCTOR 470UH
L002	1-408-878-21	MICRO INDUCTOR 0.33UH
L003	1-408-878-21	MICRO INDUCTOR 0.33UH
L004	1-408-421-00	MICRO INDUCTOR 100UH
L005	1-408-425-00	MICRO INDUCTOR 220UH
L006	1-408-425-00	MICRO INDUCTOR 220UH
L007	1-407-502-00	MICRO INDUCTOR 6.8MMH
L008	1-407-502-00	MICRO INDUCTOR 6.8MMH
L009	1-408-414-00	MICRO INDUCTOR 27UH
L010	1-408-414-00	MICRO INDUCTOR 27UH
L012	1-407-717-00	MICRO INDUCTOR 1MMH
L014	1-408-410-00	MICRO INDUCTOR 12UH
L015	1-408-423-00	MICRO INDUCTOR 150UH
L017	1-408-423-00	MICRO INDUCTOR 150UH
L018	1-408-415-00	MICRO INDUCTOR 33UH
L019	1-408-421-00	MICRO INDUCTOR 100UH
L020	1-408-412-00	MICRO INDUCTOR 18UH
L021	1-408-412-00	MICRO INDUCTOR 18UH
L022	1-408-422-00	MICRO INDUCTOR 120UH
L023	1-408-424-00	MICRO INDUCTOR 180UH
L024	1-408-422-00	MICRO INDUCTOR 120UH
L025	1-408-422-00	MICRO INDUCTOR 120UH
L026	1-408-424-00	MICRO INDUCTOR 180UH
L027	1-408-422-00	MICRO INDUCTOR 120UH
L028	1-408-423-00	MICRO INDUCTOR 150UH
L029	1-408-416-00	MICRO INDUCTOR 39UH
L030	1-408-416-00	MICRO INDUCTOR 39UH
L031	1-408-421-00	MICRO INDUCTOR 100UH
L032	1-408-411-00	MICRO INDUCTOR 15UH
L033	1-408-423-00	MICRO INDUCTOR 150UH

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description	Remark
L034	1-408-417-00	MICRO INDUCTOR 47UH	
L035	1-408-416-00	MICRO INDUCTOR 39UH	
L036	1-407-170-XX	MICRO INDUCTOR 120UH	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q001	=>8-729-245-83	TRANSISTOR 2SC2458	
Q002	8-729-117-54	TRANSISTOR 2SA1175	
Q003	=>8-729-245-83	TRANSISTOR 2SC2458	
Q004	=>8-729-245-83	TRANSISTOR 2SC2458	
Q005	=>8-729-245-83	TRANSISTOR 2SC2458	
Q006	=>8-729-245-83	TRANSISTOR 2SC2458	
Q008	8-729-384-48	TRANSISTOR 2SA844	
Q009	8-729-603-50	TRANSISTOR 2SC403SP	
Q010	8-729-603-50	TRANSISTOR 2SC403SP	
Q011	8-729-384-48	TRANSISTOR 2SA844	
Q012	8-729-603-50	TRANSISTOR 2SC403SP	
Q013	8-729-603-50	TRANSISTOR 2SC403SP	
Q014	8-729-603-50	TRANSISTOR 2SC403SP	
Q015	8-729-384-48	TRANSISTOR 2SA844	
Q016	8-729-603-50	TRANSISTOR 2SC403SP	
Q017	8-729-384-48	TRANSISTOR 2SA844	
Q018	8-729-603-50	TRANSISTOR 2SC403SP	
Q019	8-729-603-50	TRANSISTOR 2SC403SP	
Q021	8-729-603-50	TRANSISTOR 2SC403SP	
Q022	8-729-603-50	TRANSISTOR 2SC403SP	
Q023	8-729-603-50	TRANSISTOR 2SC403SP	
Q024	8-729-603-50	TRANSISTOR 2SC403SP	
Q025	8-729-384-48	TRANSISTOR 2SA844	
Q028	8-729-384-48	TRANSISTOR 2SA844	
Q029	8-729-384-48	TRANSISTOR 2SA844	
Q033	8-729-384-48	TRANSISTOR 2SA844	
Q034	8-729-603-50	TRANSISTOR 2SC403SP	
Q035	8-729-603-50	TRANSISTOR 2SC403SP	
Q036	8-729-603-50	TRANSISTOR 2SC403SP	
Q037	8-729-603-50	TRANSISTOR 2SC403SP	

RESISTOR

Ref.No.	Part No.	Description				Remark
R001	1-247-819-00	CARBON	330	5%	1/6W	
R002	1-247-783-00	CARBON	10	5%	1/6W	
R003	1-247-819-00	CARBON	330	5%	1/6W	
R004	1-247-783-00	CARBON	10	5%	1/6W	
R005	1-247-863-00	CARBON	22K	5%	1/6W	
R006	1-247-855-00	CARBON	10K	5%	1/6W	
R007	1-247-852-00	CARBON	7.5K	5%	1/6W	
R008	1-247-855-00	CARBON	10K	5%	1/6W	
R009	1-247-844-00	CARBON	3.6K	5%	1/6W	
R010	1-247-867-00	CARBON	33K	5%	1/6W	
R011	1-247-807-00	CARBON	100	5%	1/6W	
R012	1-247-855-00	CARBON	10K	5%	1/6W	
R013	1-247-855-00	CARBON	10K	5%	1/6W	
R014	1-247-831-00	CARBON	1K	5%	1/6W	
R015	1-247-827-00	CARBON	680	5%	1/6W	
R016	1-247-827-00	CARBON	680	5%	1/6W	
R017	1-247-835-00	CARBON	1.5K	5%	1/6W	
R018	1-247-835-00	CARBON	1.5K	5%	1/6W	
R019	1-247-844-00	CARBON	3.6K	5%	1/6W	
R020	1-247-844-00	CARBON	3.6K	5%	1/6W	
R021	1-247-831-00	CARBON	1K	5%	1/6W	
R022	1-247-867-00	CARBON	33K	5%	1/6W	
R023	1-247-871-00	CARBON	47K	5%	1/6W	
R024	1-247-847-00	CARBON	4.7K	5%	1/6W	
R025	1-247-847-00	CARBON	4.7K	5%	1/6W	
R026	1-247-855-00	CARBON	10K	5%	1/6W	
R027	1-247-847-00	CARBON	4.7K	5%	1/6W	
R028	1-247-855-00	CARBON	10K	5%	1/6W	
R029	1-247-824-00	CARBON	510	5%	1/6W	
R030	1-247-824-00	CARBON	510	5%	1/6W	
R031	1-247-779-00	CARBON	6.8	5%	1/6W	
R032	1-247-822-00	CARBON	430	5%	1/6W	
R033	1-247-815-00	CARBON	220	5%	1/6W	
R034 ⚠	1-212-855-00	FUSIBLE	8.2	5%	1/4W	F
R035	1-247-839-00	CARBON	2.2K	5%	1/6W	
R036	1-247-839-00	CARBON	2.2K	5%	1/6W	
R037	1-247-831-00	CARBON	1K	5%	1/6W	
R038	1-247-831-00	CARBON	1K	5%	1/6W	
R039	1-247-839-00	CARBON	2.2K	5%	1/6W	
R040	1-247-839-00	CARBON	2.2K	5%	1/6W	
R041	1-247-833-00	CARBON	1.2K	5%	1/6W	
R042 ⚠	1-212-855-00	FUSIBLE	8.2	5%	1/4W	F
R043	1-247-847-00	CARBON	4.7K	5%	1/6W	
R044	1-247-849-00	CARBON	5.6K	5%	1/6W	
R045	1-247-849-00	CARBON	5.6K	5%	1/6W	
R046	1-247-809-00	CARBON	120	5%	1/6W	
R047	1-247-844-00	CARBON	3.6K	5%	1/6W	
R048	1-247-839-00	CARBON	2.2K	5%	1/6W	
R049	1-247-814-00	CARBON	200	5%	1/6W	
R050	1-247-840-00	CARBON	2.4K	5%	1/6W	
R051	1-247-818-00	CARBON	300	5%	1/6W	
R052	1-247-834-00	CARBON	1.3K	5%	1/6W	
R053	1-247-830-00	CARBON	910	5%	1/6W	
R054	1-247-835-00	CARBON	1.5K	5%	1/6W	
R055	1-247-855-00	CARBON	10K	5%	1/6W	
R056	1-247-836-00	CARBON	1.6K	5%	1/6W	
R057	1-247-849-00	CARBON	5.6K	5%	1/6W	
R058	1-247-832-00	CARBON	1.1K	5%	1/6W	
R059	1-247-837-00	CARBON	1.8K	5%	1/6W	
R060	1-247-814-00	CARBON	200	5%	1/6W	
R061	1-247-839-00	CARBON	2.2K	5%	1/6W	
R062	1-247-810-00	CARBON	130	5%	1/6W	
R063	1-247-825-00	CARBON	560	5%	1/6W	
R064	1-247-839-00	CARBON	2.2K	5%	1/6W	
R065	1-247-842-00	CARBON	3K	5%	1/6W	
R066	1-247-821-00	CARBON	390	5%	1/6W	
R067	1-247-863-00	CARBON	22K	5%	1/6W	
R068	1-247-863-00	CARBON	22K	5%	1/6W	
R069	1-247-819-00	CARBON	330	5%	1/6W	
R071	1-247-812-00	CARBON	160	5%	1/6W	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description				Remark
R072	1-247-831-00	CARBON	1K	5%	1/6W	
R073	1-247-855-00	CARBON	10K	5%	1/6W	
R074	1-247-832-00	CARBON	1.1K	5%	1/6W	
R075	1-247-832-00	CARBON	1.1K	5%	1/6W	
R077	1-247-859-00	CARBON	15K	5%	1/6W	
R078	1-247-855-00	CARBON	10K	5%	1/6W	
R079	1-247-842-00	CARBON	3K	5%	1/6W	
R080	1-247-867-00	CARBON	33K	5%	1/6W	
R081	1-247-824-00	CARBON	510	5%	1/6W	
R082	1-247-838-00	CARBON	2K	5%	1/6W	
R086	1-247-811-00	CARBON	150	5%	1/6W	
R087	1-247-866-00	CARBON	30K	5%	1/6W	
R088	1-247-844-00	CARBON	3.6K	5%	1/6W	
R089	1-247-847-00	CARBON	4.7K	5%	1/6W	
R090	1-247-831-00	CARBON	1K	5%	1/6W	
R091	1-247-883-00	CARBON	150K	5%	1/6W	
R092	1-247-867-00	CARBON	33K	5%	1/6W	
R095	1-247-869-00	CARBON	39K	5%	1/6W	
R096	1-247-807-00	CARBON	100	5%	1/6W	
R099	1-247-849-00	CARBON	5.6K	5%	1/6W	
R100	1-247-817-00	CARBON	270	5%	1/6W	
R101	1-247-817-00	CARBON	270	5%	1/6W	
R102	1-247-861-00	CARBON	18K	5%	1/6W	
R103	1-247-824-00	CARBON	510	5%	1/6W	
R104	1-247-883-00	CARBON	150K	5%	1/6W	
R105	1-247-838-00	CARBON	2K	5%	1/6W	
R106	1-247-835-00	CARBON	1.5K	5%	1/6W	
R108	1-247-837-00	CARBON	1.8K	5%	1/6W	
R109	1-247-837-00	CARBON	1.8K	5%	1/6W	
R110	1-247-849-00	CARBON	5.6K	5%	1/6W	
R111	1-247-879-00	CARBON	100K	5%	1/6W	
R112	1-247-827-00	CARBON	680	5%	1/6W	
R113	1-247-831-00	CARBON	1K	5%	1/6W	
R115	1-247-833-00	CARBON	1.2K	5%	1/6W	
R116	1-247-826-00	CARBON	620	5%	1/6W	
R117	1-247-826-00	CARBON	620	5%	1/6W	
R118	1-247-837-00	CARBON	1.8K	5%	1/6W	
R119	1-247-837-00	CARBON	1.8K	5%	1/6W	
R122	1-247-823-00	CARBON	470	5%	1/6W	
R123	1-247-824-00	CARBON	510	5%	1/6W	
R126	1-247-845-00	CARBON	3.9K	5%	1/6W	
R134	1-247-869-00	CARBON	39K	5%	1/6W	
R135	1-247-866-00	CARBON	30K	5%	1/6W	
R136	1-247-831-00	CARBON	1K	5%	1/6W	
R137	1-247-831-00	CARBON	1K	5%	1/6W	
R138	1-247-835-00	CARBON	1.5K	5%	1/6W	
R139	1-247-831-00	CARBON	1K	5%	1/6W	
R140	1-247-831-00	CARBON	1K	5%	1/6W	
R141	1-247-831-00	CARBON	1K	5%	1/6W	
R150	1-247-874-00	CARBON	62K	5%	1/6W	
R151	1-247-874-00	CARBON	62K	5%	1/6W	
R152	1-247-890-00	CARBON	300K	5%	1/6W	
R153	1-247-811-00	CARBON	150	5%	1/6W	
R154	1-247-834-00	CARBON	1.3K	5%	1/6W	
R155	1-247-837-00	CARBON	1.8K	5%	1/6W	
R156	1-247-817-00	CARBON	270	5%	1/6W	
R157	1-247-811-00	CARBON	150	5%	1/6W	
R158	1-247-829-00	CARBON	820	5%	1/6W	
R159	1-247-839-00	CARBON	2.2K	5%	1/6W	
R160	1-247-821-00	CARBON	390	5%	1/6W	
R162	1-247-831-00	CARBON	1K	5%	1/6W	
R163	1-247-863-00	CARBON	22K	5%	1/6W	
R164	1-247-863-00	CARBON	22K	5%	1/6W	
R165	1-247-834-00	CARBON	1.3K	5%	1/6W	
R166	1-247-807-00	CARBON	100	5%	1/6W	
R167	1-247-834-00	CARBON	1.3K	5%	1/6W	
R169	1-247-812-00	CARBON	160	5%	1/6W	
R170	1-247-819-00	CARBON	330	5%	1/6W	
R171	1-247-831-00	CARBON	1K	5%	1/6W	
R172	1-247-855-00	CARBON	10K	5%	1/6W	
R173	1-247-839-00	CARBON	2.2K	5%	1/6W	
R177	1-247-831-00	CARBON	1K	5%	1/6W	
R178	1-247-825-00	CARBON	560	5%	1/6W	
R179	1-247-857-00	CARBON	12K	5%	1/6W	

VARIABLE RESISTOR

Ref.No.	Part No.	Description	Remark
RV001	1-226-847-00	RES, ADJ, CARBON 1K	
RV002	1-226-848-00	RES, ADJ, CARBON 2.2K	
RV003	1-228-991-00	RES, ADJ, METAL GLAZE 2.2K	
RV004	1-228-991-00	RES, ADJ, METAL GLAZE 2.2K	
RV005	1-228-746-00	RES, ADJ, CARBON 2.2K	
RV006	1-228-753-00	RES, ADJ, CARBON 470K	
RV007	1-228-745-00	RES, ADJ, CARBON 1K	
RV008	1-226-851-00	RES, ADJ, CARBON 10K	
RV009	1-228-750-00	RES, ADJ, CARBON 47K	
RV010	1-228-750-00	RES, ADJ, CARBON 47K	
RV011	1-228-994-00	RES, ADJ, METAL GLAZE 10K	
RV012	1-228-991-00	RES, ADJ, METAL GLAZE 2.2K	
RV013	1-228-745-00	RES, ADJ, CARBON 1K	
RV014	1-226-850-00	RES, ADJ, CARBON 4.7K	

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description			Remark
	♦:A-6711-477-A	YC-25 BOARD, COMPLETE **********************			
	1-536-796-21	TERMINAL BOARD, CONTROL PANEL			

FILTER

Ref.No.	Part No.	Description			Remark
BPF001	1-235-098-00	FILTER, BAND PASS			

CAPACITOR

Ref.No.	Part No.	Description			Remark
C001	1-102-953-00	CERAMIC	18PF	5%	50V
C002	1-101-004-00	CERAMIC	0.01MF		50V
C003	1-102-525-00	CERAMIC	68PF	5%	50V
C004	1-102-525-00	CERAMIC	68PF	5%	50V
C005	1-102-110-00	CERAMIC	220PF	10%	50V
C006	1-101-004-00	CERAMIC	0.01MF		50V
C007	1-161-021-00	CERAMIC	0.047MF	10%	25V
C008	1-123-356-00	ELECT	10MF	20%	16V
C009	1-123-356-00	ELECT	10MF	20%	25V
C010	1-123-356-00	ELECT	10MF	20%	25V
C011	1-123-379-00	ELECT	0.47MF	20%	50V
C012	1-123-379-00	ELECT	0.47MF	20%	50V
C013	1-108-603-00	MYLAR	0.1MF	5%	50V
C014	1-123-354-00	ELECT	3.3MF	20%	50V
C015	1-101-004-00	CERAMIC	0.01MF		50V
C016	1-101-974-00	CERAMIC	20PF	5%	50V
C017	1-101-006-00	CERAMIC	0.047MF		50V
C018	1-101-006-00	CERAMIC	0.047MF		50V
C019	1-101-004-00	CERAMIC	0.01MF		50V
C021	1-101-003-00	CERAMIC	0.0047MF		50V
C022	1-123-380-00	ELECT	1MF	20%	50V
C023	1-101-004-00	CERAMIC	0.01MF		50V
C024	1-101-004-00	CERAMIC	0.01MF		50V
C025	1-101-004-00	CERAMIC	0.01MF		50V
C026	1-102-850-00	CERAMIC	56PF	5%	50V
C027	1-101-004-00	CERAMIC	0.01MF		50V
C028	1-101-004-00	CERAMIC	0.01MF		50V
C029	1-101-004-00	CERAMIC	0.01MF		50V
C030	1-102-850-00	CERAMIC	56PF	5%	50V
C031	1-101-004-00	CERAMIC	0.01MF		50V
C032	1-101-004-00	CERAMIC	0.01MF		50V
C033	1-101-005-00	CERAMIC	0.022MF		50V
C034	1-102-113-00	CERAMIC	390PF	10%	50V
C035	1-101-004-00	CERAMIC	0.01MF		50V
C036	1-161-021-00	CERAMIC	0.047MF	10%	25V
C037	1-123-318-00	ELECT	33MF	20%	16V
C038	1-101-004-00	CERAMIC	0.01MF		50V
C039	1-101-004-00	CERAMIC	0.01MF		50V
C040	1-101-004-00	CERAMIC	0.01MF		50V
C041	1-101-004-00	CERAMIC	0.01MF		50V
C043	1-102-508-00	CERAMIC	10PF	0.5PF	50V
C044	1-161-025-00	CERAMIC	0.1MF	10%	25V
C045	1-161-025-00	CERAMIC	0.1MF	10%	25V
C046	1-123-354-00	ELECT	3.3MF	20%	50V
C047	1-101-005-00	CERAMIC	0.022MF		50V
C048	1-101-004-00	CERAMIC	0.01MF		50V
C049	1-101-004-00	CERAMIC	0.01MF		50V
C050	1-101-004-00	CERAMIC	0.01MF		50V
C051	1-123-332-00	ELECT	47MF	20%	16V
C052	1-101-001-00	CERAMIC	0.001MF		50V
C053	1-101-006-00	CERAMIC	0.047MF		50V
C054	1-123-333-00	ELECT	100MF	20%	16V
C055	1-123-318-00	ELECT	33MF	20%	16V
C056	1-101-001-00	CERAMIC	0.001MF		50V
C057	1-131-341-00	ELECT(SOLID)	0.1MF	10%	25V
C058	1-101-005-00	CERAMIC	0.022MF		50V
C059	1-123-356-00	ELECT	10MF	20%	16V
C060	1-123-330-00	ELECT	22MF	20%	16V
C061	1-102-512-00	CERAMIC	16PF	5%	50V
C062	1-101-005-00	CERAMIC	0.022MF		50V
C064	1-101-001-00	CERAMIC	0.001MF		50V
C065	1-101-004-00	CERAMIC	0.01MF		50V
C066	1-123-381-00	ELECT	2.2MF	20%	50V
C067	1-123-356-00	ELECT	10MF	20%	16V
C068	1-108-589-00	MYLAR	0.027MF	5%	50V
C069	1-123-306-00	ELECT	47MF	20%	10V
C070	1-101-006-00	CERAMIC	0.047MF		50V
C071	1-101-004-00	CERAMIC	0.01MF		50V
C072	1-101-005-00	CERAMIC	0.022MF		50V
C073	1-101-004-00	CERAMIC	0.01MF		50V
C074	1-101-004-00	CERAMIC	0.01MF		50V
C075	1-101-004-00	CERAMIC	0.01MF		50V
C076	1-101-004-00	CERAMIC	0.01MF		50V
C077	1-101-006-00	CERAMIC	0.047MF		50V
C078	1-123-318-00	ELECT	33MF	20%	16V
C079	1-101-004-00	CERAMIC	0.01MF		50V
C080	1-102-947-00	CERAMIC	10PF	5%	50V
C081	1-102-529-00	CERAMIC	100PF	5%	50V
C082	1-101-004-00	CERAMIC	0.01MF		50V
C083	1-101-004-00	CERAMIC	0.01MF		50V
C084	1-101-004-00	CERAMIC	0.01MF		50V
C085	1-101-004-00	CERAMIC	0.01MF		50V
C086	1-102-979-00	CERAMIC	240PF	5%	50V
C087	1-101-006-00	CERAMIC	0.047MF		50V
C088	1-101-006-00	CERAMIC	0.047MF		50V
C089	1-102-947-00	CERAMIC	10PF	5%	50V
C090	1-102-947-00	CERAMIC	10PF	5%	50V
C092	1-101-004-00	CERAMIC	0.01MF		50V
C093	1-101-004-00	CERAMIC	0.01MF		50V
C094	1-102-129-00	CERAMIC	0.01MF	10%	50V
C095	1-102-523-00	CERAMIC	56PF	5%	50V
C096	1-102-529-00	CERAMIC	100PF	5%	50V
C097	1-102-529-00	CERAMIC	100PF	5%	50V
C098	1-102-530-00	CERAMIC	120PF	5%	50V
C099	1-101-004-00	CERAMIC	0.01MF		50V
C100	1-101-006-00	CERAMIC	0.047MF		50V
C101	1-123-356-00	ELECT	10MF	20%	16V

When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description			Remark
C102	1-102-531-00	CERAMIC	150PF	5%	50V
C103	1-108-555-00	MYLAR	0.001MF	5%	50V
C104	1-108-555-00	MYLAR	0.001MF	5%	50V
C105	1-102-947-00	CERAMIC	10PF	5%	50V
C106	1-123-306-00	ELECT	47MF	20%	10V
C107	1-101-880-00	CERAMIC	47PF	5%	50V
C108	1-123-328-00	ELECT	4.7MF	20%	25V
C109	1-161-025-00	CERAMIC	0.1MF	10%	25V
C110	1-102-973-00	CERAMIC	100PF	5%	50V
C111	1-161-025-00	CERAMIC	0.1MF	10%	25V
C112	1-108-595-00	MYLAR	0.047MF	5%	50V
C113	1-101-059-00	CERAMIC	510PF	5%	50V
C114	1-102-114-00	CERAMIC	470PF	10%	50V
C115	1-102-977-00	CERAMIC	200PF	5%	50V
C116	1-102-114-00	CERAMIC	470PF	10%	50V
C117	1-123-328-00	ELECT	4.7MF	20%	25V
C118	1-123-356-00	ELECT	10MF	20%	16V
C119	1-123-356-00	ELECT	10MF	20%	16V
C120	1-123-318-00	ELECT	33MF	20%	16V
C121	1-123-318-00	ELECT	33MF	20%	16V
C122	1-123-328-00	ELECT	4.7MF	20%	25V
C123	1-123-328-00	ELECT	4.7MF	20%	25V
C124	1-101-004-00	CERAMIC	0.01MF		50V
C125	1-101-006-00	CERAMIC	0.047MF		50V
C126	1-101-884-00	CERAMIC	56PF	5%	50V
C127	1-101-006-00	CERAMIC	0.047MF		50V
C128	1-101-006-00	CERAMIC	0.047MF		50V
C129	1-102-960-00	CERAMIC	24PF	5%	50V
C130	1-101-004-00	CERAMIC	0.01MF		50V
C131	1-101-006-00	CERAMIC	0.047MF		50V
C132	1-101-884-00	CERAMIC	56PF	5%	50V
C133	1-102-937-00	CERAMIC	4PF	0.25PF	50V
C134	1-101-004-00	CERAMIC	0.01MF		50V
C135	1-101-004-00	CERAMIC	0.01MF		50V
C136	1-123-380-00	ELECT	1MF	20%	50V
C137	1-108-569-00	MYLAR	0.0039MF	5%	50V
C138	1-123-356-00	ELECT	10MF	20%	16V
C139	1-123-332-00	ELECT	47MF	20%	16V
C140	1-101-006-00	CERAMIC	0.047MF		50V
C141	1-123-318-00	ELECT	33MF	20%	16V
C142	1-101-005-00	CERAMIC	0.022MF		50V
C143	1-123-333-00	ELECT	100MF	20%	16V
C144	1-101-004-00	CERAMIC	0.01MF		50V
C145	1-161-025-00	CERAMIC	0.1MF	10%	25V
C147	1-123-330-00	ELECT	22MF	20%	16V
C148	1-123-356-00	ELECT	10MF	20%	25V
C150	1-123-356-00	ELECT	10MF	20%	16V
C151	1-123-311-00	ELECT	1000MF	20%	10V
C154	1-123-356-00	ELECT	10MF	20%	16V
C155	1-123-311-00	ELECT	1000MF	20%	10V
C156	1-123-330-00	ELECT	22MF	20%	16V
C157	1-123-356-00	ELECT	10MF	20%	16V
C158	1-123-356-00	ELECT	10MF	20%	16V

Ref.No.	Part No.	Description			Remark
C159	1-123-356-00	ELECT	10MF	20%	16V
C160	1-123-311-00	ELECT	1000MF	20%	10V
C161	1-123-356-00	ELECT	10MF	20%	16V
C162	1-161-021-00	CERAMIC	0.047MF	10%	25V
C163	1-101-004-00	CERAMIC	0.01MF		50V
C164	1-101-006-00	CERAMIC	0.047MF		50V
C165	1-123-356-00	ELECT	10MF	20%	16V
C166	1-123-330-00	ELECT	22MF	20%	16V
C167	1-101-006-00	CERAMIC	0.047MF		50V
C168	1-123-356-00	ELECT	10MF	20%	16V
C169	1-101-002-00	CERAMIC	0.0022MF		50V
C170	1-102-904-00	CERAMIC	110PF	5%	50V
C301	1-101-004-00	CERAMIC	0.01MF		50V
C302	1-102-811-61	CERAMIC	9PF	1PF	50V
C303	1-123-328-00	ELECT	4.7MF	20%	25V
C304	1-101-006-00	CERAMIC	0.047MF		50V
C305	1-161-021-00	CERAMIC	0.047MF	10%	25V
C306	1-101-006-00	CERAMIC	0.047MF		50V
C307	1-123-356-00	ELECT	10MF	20%	16V
C308	1-161-021-00	CERAMIC	0.047MF	10%	25V
C309	1-161-021-00	CERAMIC	0.047MF	10%	25V
C310	1-161-021-00	CERAMIC	0.047MF	10%	25V
C311	1-161-021-00	CERAMIC	0.047MF	10%	25V
C312	1-161-021-00	CERAMIC	0.047MF	10%	25V
C314	1-102-978-00	CERAMIC	220PF	5%	50V
C315	1-101-004-00	CERAMIC	0.01MF		50V
C316	1-101-004-00	CERAMIC	0.01MF		50V
C317	1-102-520-00	CERAMIC	39PF	5%	50V
C318	1-101-006-00	CERAMIC	0.047MF		50V
C319	1-123-319-00	ELECT	47MF		16V
C320	1-123-320-00	ELECT	100MF		16V

FILTER

Ref.No.	Part No.	Description
CF001	1-527-874-00	FILTER, CERAMIC
CF002	1-527-875-00	FILTER, CERAMIC
CF003	1-527-998-00	FILTER, CERAMIC

CONNECTOR

Ref.No.	Part No.	Description
CN001♠:	1-564-032-00	PIN, CONNECTOR 7P
CN002♠:	1-564-033-00	PIN, CONNECTOR 8P
CN003♠:	1-560-891-00	PIN, CONNECTOR 3P
CN004♠:	1-560-895-00	PIN, CONNECTOR 7P
CN005♠:	1-560-893-00	PIN, CONNECTOR 5P
CN006♠:	1-560-894-00	PIN, CONNECTOR 6P
CN007♠:	1-560-896-00	PIN, CONNECTOR 8P
CN008♠:	1-560-895-00	PIN, CONNECTOR 7P
CN009	1-507-840-00	JACK, MINIATURE
CN010	1-562-121-00	CONNECTOR, DIN 6P

TRIMMER

Ref.No.	Part No.	Description
CV001	1-141-275-00	CAP, TRIMMER

DIODE

Ref.No.	Part No.	Description
D001	=>8-719-911-19	DIODE 1SS119
D002	=>8-719-911-19	DIODE 1SS119

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description	Remark
D004	=>8-719-100-35	DIODE RD5.6EB2	
D005	8-719-000-12	DIODE MC931	
D007	8-719-000-06	DIODE MC921	
D009	8-719-000-06	DIODE MC921	
D013	=>8-719-911-19	DIODE 1SS119	
D016	=>8-719-911-19	DIODE 1SS119	
D017	=>8-719-911-19	DIODE 1SS119	
D018	=>8-719-911-19	DIODE 1SS119	
D019	=>8-719-911-19	DIODE 1SS119	
D020	=>8-719-911-19	DIODE 1SS119	
D022	=>8-719-911-19	DIODE 1SS119	
D023	=>8-719-911-19	DIODE 1SS119	
D024	=>8-719-911-19	DIODE 1SS119	
D025	=>8-719-911-19	DIODE 1SS119	
D027	8-719-200-02	DIODE 10E2	
D028	=>8-719-100-57	DIODE RD10EB2	
D031	=>8-719-911-19	DIODE 1SS119	
D032	=>8-719-911-19	DIODE 1SS119	
D035	=>8-719-911-19	DIODE 1SS119	
D036	=>8-719-911-19	DIODE 1SS119	
D037	=>8-719-911-19	DIODE 1SS119	

DELAY LINE

DL001	1-415-282-00	DELAY LINE (2H)	
DL002	1-415-313-00	DELAY LINE (1H)	

IC

IC001	=>8-758-691-00	IC CX-869A	
IC002	8-759-208-94	IC CX-894	
IC003	8-759-608-82	IC CX-882	
IC004	8-752-000-80	IC CX20008	
IC005	8-757-945-00	IC CX-7945	
IC006	8-759-600-08	IC CX-870A	
IC007	8-759-904-95	IC BA7007	
IC008	8-759-208-94	IC CX-894	
IC009	8-759-208-94	IC CX-894	
IC010	8-759-273-20	IC TA7320P	
IC011	8-759-240-13	IC TC4013BP	
IC012	8-759-240-69	IC TC4069UBP	
IC013	8-759-208-67	IC CX-867	
IC014	8-759-908-68	IC CX-868	
IC015	=>8-750-000-74	IC CX20061	
IC016	8-759-979-26	IC CX-7926	

COIL

L001	1-408-420-00	MICRO INDUCTOR 82UH	
	1-408-513-00	COIL (VARIABLE)	
L002	1-408-427-00	MICRO INDUCTOR 330UH	
L003	1-407-503-00	MICRO INDUCTOR 8.2MMH	
	1-408-513-00	COIL (VARIABLE)	
L004	1-408-408-00	MICRO INDUCTOR 8.2UH	
L005	1-408-429-00	MICRO INDUCTOR 470UH	

Ref.No.	Part No.	Description	Remark
L006	1-407-503-00	MICRO INDUCTOR 8.2MMH	
L007	1-408-412-00	MICRO INDUCTOR 18UH	
L008	1-408-426-00	MICRO INDUCTOR 270UH	
L009	1-408-429-00	MICRO INDUCTOR 470UH	
L010	1-407-503-00	MICRO INDUCTOR 8.2MMH	
L011	1-408-408-00	MICRO INDUCTOR 8.2UH	
L012	1-408-406-00	MICRO INDUCTOR 5.6UH	
L013	1-407-496-00	MICRO INDUCTOR 2.2MMH	
L014	1-407-500-00	MICRO INDUCTOR 4.7MMH	
L015	1-407-163-XX	MICRO INDUCTOR 33UH	
L101	1-408-418-00	MICRO INDUCTOR 56UH	

FILTER

LPF001	1-235-097-00	FILTER, LOW PASS	

VARIABLE COIL

LV001	1-408-513-00	COIL (VARIABLE)	
LV002	1-408-512-00	COIL (VARIABLE)	
LV003	1-408-513-00	COIL (VARIABLE)	
LV004	1-407-291-00	MICRO INDUCTOR 15MMH	

VOLUME BLOCK

PS001⚠	1-532-685-00	LINK, IC P-N20	

TRANSISTOR

Q001	=>8-729-245-83	TRANSISTOR 2SC2458	
Q002	=>8-729-245-83	TRANSISTOR 2SC2458	
Q003	=>8-729-245-83	TRANSISTOR 2SC2458	
Q004	=>8-729-245-83	TRANSISTOR 2SC2458	
Q006	8-729-603-50	TRANSISTOR 2SC403SP	
Q007	=>8-729-245-83	TRANSISTOR 2SC2458	
Q008	=>8-729-245-83	TRANSISTOR 2SC2458	
Q009	=>8-729-245-83	TRANSISTOR 2SC2458	
Q010	=>8-729-245-83	TRANSISTOR 2SC2458	
Q011	=>8-729-204-83	TRANSISTOR 2SA1048-GR	
Q012	=>8-729-245-83	TRANSISTOR 2SC2458	
Q013	8-729-603-50	TRANSISTOR 2SC403SP	
Q014	8-729-603-50	TRANSISTOR 2SC403SP	
Q015	8-729-603-50	TRANSISTOR 2SC403SP	
Q016	=>8-729-245-83	TRANSISTOR 2SC2458	
Q017	=>8-729-245-83	TRANSISTOR 2SC2458	
Q018	=>8-729-245-83	TRANSISTOR 2SC2458	
Q019	=>8-729-245-83	TRANSISTOR 2SC2458	
Q020	=>8-729-245-83	TRANSISTOR 2SC2458	
Q021	=>8-729-245-83	TRANSISTOR 2SC2458	
Q022	=>8-729-245-83	TRANSISTOR 2SC2458	
Q023	=>8-729-245-83	TRANSISTOR 2SC2458	
Q024	=>8-729-245-83	TRANSISTOR 2SC2458	
Q025	=>8-729-245-83	TRANSISTOR 2SC2458	
Q026	=>8-729-245-83	TRANSISTOR 2SC2458	
Q027	=>8-729-245-83	TRANSISTOR 2SC2458	
Q028	=>8-729-204-83	TRANSISTOR 2SA1048-GR	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description				Remark
Q029	=>8-729-245-83	TRANSISTOR	2SC2458			
Q030	=>8-729-245-83	TRANSISTOR	2SC2458			
Q031	=>8-729-245-83	TRANSISTOR	2SC2458			
Q032	=>8-729-245-83	TRANSISTOR	2SC2458			
Q033	=>8-729-204-83	TRANSISTOR	2SA1048-GR			
Q034	=>8-729-245-83	TRANSISTOR	2SC2458			
Q035	=>8-729-204-83	TRANSISTOR	2SA1048-GR			
Q036	=>8-729-204-83	TRANSISTOR	2SA1048-GR			
Q037	=>8-729-204-83	TRANSISTOR	2SA1048-GR			
Q038	=>8-729-204-83	TRANSISTOR	2SA1048-GR			
Q039	=>8-729-245-83	TRANSISTOR	2SC2458			
Q040	=>8-729-204-83	TRANSISTOR	2SA1048-GR			
Q041	=>8-729-245-83	TRANSISTOR	2SC2458			
Q042	=>8-729-245-83	TRANSISTOR	2SC2458			
Q043	=>8-729-245-83	TRANSISTOR	2SC2458			
Q044	=>8-729-245-83	TRANSISTOR	2SC2458			
Q045	=>8-729-245-83	TRANSISTOR	2SC2458			
Q046	=>8-729-245-83	TRANSISTOR	2SC2458			
Q047	=>8-729-245-83	TRANSISTOR	2SC2458			
Q048	=>8-729-245-83	TRANSISTOR	2SC2458			
Q049	=>8-729-204-83	TRANSISTOR	2SA1048-GR			
Q050	=>8-729-245-83	TRANSISTOR	2SC2458			
Q051	=>8-729-204-83	TRANSISTOR	2SA1048-GR			
Q052	=>8-729-245-83	TRANSISTOR	2SC2458			
Q053	=>8-729-245-83	TRANSISTOR	2SC2458			
Q054	=>8-729-245-83	TRANSISTOR	2SC2458			
Q055	8-729-113-32	TRANSISTOR	2SB733			
Q056	8-729-113-32	TRANSISTOR	2SB733			
Q059	=>8-729-245-83	TRANSISTOR	2SC2458			
Q061	=>8-729-245-83	TRANSISTOR	2SC2458			
Q063	=>8-729-245-83	TRANSISTOR	2SC2458			
Q065	8-729-113-32	TRANSISTOR	2SB733			
Q066	=>8-729-245-83	TRANSISTOR	2SC2458			
Q068	=>8-729-245-83	TRANSISTOR	2SC2458			
Q069	=>8-729-204-83	TRANSISTOR	2SA1048-GR			
Q072	=>8-729-245-83	TRANSISTOR	2SC2458			
Q073	=>8-729-245-83	TRANSISTOR	2SC2458			

RESISTOR

Ref.No.	Part No.	Description				Remark
R001	1-247-831-00	CARBON	1K	5%	1/6W	
R002	1-247-831-00	CARBON	1K	5%	1/6W	
R003	1-247-821-00	CARBON	390	5%	1/6W	
R004	1-247-835-00	CARBON	1.5K	5%	1/6W	
R005	1-247-855-00	CARBON	10K	5%	1/6W	
R006	1-247-867-00	CARBON	33K	5%	1/6W	
R007	1-247-855-00	CARBON	10K	5%	1/6W	
R008	1-247-831-00	CARBON	1K	5%	1/6W	
R009	1-247-831-00	CARBON	1K	5%	1/6W	
R010	1-247-870-00	CARBON	43K	5%	1/6W	
R011	1-247-865-00	CARBON	27K	5%	1/6W	
R012	1-247-875-00	CARBON	68K	5%	1/6W	
R013	1-247-867-00	CARBON	33K	5%	1/6W	
R014	1-247-867-00	CARBON	33K	5%	1/6W	
R015	1-247-867-00	CARBON	33K	5%	1/6W	
R016	1-247-867-00	CARBON	33K	5%	1/6W	
R017	1-247-848-00	CARBON	5.1K	5%	1/6W	
R018	1-247-873-00	CARBON	56K	5%	1/6W	
R019	1-247-873-00	CARBON	56K	5%	1/6W	
R020	1-247-847-00	CARBON	4.7K	5%	1/6W	
R021	1-247-831-00	CARBON	1K	5%	1/6W	
R022	1-247-873-00	CARBON	56K	5%	1/6W	
R023	1-247-863-00	CARBON	22K	5%	1/6W	
R024	1-247-873-00	CARBON	56K	5%	1/6W	
R025	1-247-871-00	CARBON	47K	5%	1/6W	
R026	1-247-871-00	CARBON	47K	5%	1/6W	
R027	1-247-869-00	CARBON	39K	5%	1/6W	
R028	1-247-871-00	CARBON	47K	5%	1/6W	
R029	1-247-852-00	CARBON	7.5K	5%	1/6W	
R030	1-247-842-00	CARBON	3K	5%	1/6W	
R031	1-247-849-00	CARBON	5.6K	5%	1/6W	
R032	1-247-817-00	CARBON	270	5%	1/6W	
R033	1-247-823-00	CARBON	470	5%	1/6W	
R034	1-247-797-00	CARBON	39	5%	1/6W	
R035	1-247-848-00	CARBON	5.1K	5%	1/6W	
R036	1-247-868-00	CARBON	36K	5%	1/6W	
R037	1-247-831-00	CARBON	1K	5%	1/6W	
R038	1-247-814-00	CARBON	200	5%	1/6W	
R039	1-247-855-00	CARBON	10K	5%	1/6W	
R040	1-247-862-00	CARBON	20K	5%	1/6W	
R041	1-247-824-00	CARBON	510	5%	1/6W	
R042	1-247-809-00	CARBON	120	5%	1/6W	
R043	1-247-770-00	CARBON	3	5%	1/6W	
R044	1-247-847-00	CARBON	4.7K	5%	1/6W	
R045	1-247-863-00	CARBON	22K	5%	1/6W	
R047	1-247-821-00	CARBON	390	5%	1/6W	
R048	1-247-839-00	CARBON	2.2K	5%	1/6W	
R049	1-247-821-00	CARBON	390	5%	1/6W	
R050	1-247-821-00	CARBON	390	5%	1/6W	
R051	1-247-821-00	CARBON	390	5%	1/6W	
R052	1-247-821-00	CARBON	390	5%	1/6W	
R053	1-247-821-00	CARBON	390	5%	1/6W	
R054	1-247-839-00	CARBON	2.2K	5%	1/6W	
R055	1-247-839-00	CARBON	2.2K	5%	1/6W	
R056	1-247-867-00	CARBON	33K	5%	1/6W	
R057	1-247-855-00	CARBON	10K	5%	1/6W	
R058	1-247-867-00	CARBON	33K	5%	1/6W	
R059	1-247-855-00	CARBON	10K	5%	1/6W	
R060	1-247-855-00	CARBON	10K	5%	1/6W	
R061	1-247-867-00	CARBON	33K	5%	1/6W	
R062	1-247-855-00	CARBON	10K	5%	1/6W	
R063	1-247-841-00	CARBON	2.7K	5%	1/6W	
R064	1-247-831-00	CARBON	1K	5%	1/6W	
R066	1-247-831-00	CARBON	1K	5%	1/6W	
R067	1-247-886-00	CARBON	200K	5%	1/6W	
R068	1-247-839-00	CARBON	2.2K	5%	1/6W	
R069	1-247-831-00	CARBON	1K	5%	1/6W	

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description				Remark
R070	1-247-831-00	CARBON	1K	5%	1/6W	
R071	1-247-858-00	CARBON	13K	5%	1/6W	
R072	1-247-879-00	CARBON	100K	5%	1/6W	
R073	1-247-862-00	CARBON	20K	5%	1/6W	
R074	1-247-863-00	CARBON	22K	5%	1/6W	
R075	1-247-842-00	CARBON	3K	5%	1/6W	
R076	1-247-871-00	CARBON	47K	5%	1/6W	
R077	1-247-839-00	CARBON	2.2K	5%	1/6W	
R078	1-247-839-00	CARBON	2.2K	5%	1/6W	
R079	1-247-839-00	CARBON	2.2K	5%	1/6W	
R080	1-247-864-00	CARBON	24K	5%	1/6W	
R081	1-247-831-00	CARBON	1K	5%	1/6W	
R082	1-247-831-00	CARBON	1K	5%	1/6W	
R083	1-247-847-00	CARBON	4.7K	5%	1/6W	
R084	1-247-855-00	CARBON	10K	5%	1/6W	
R085	1-247-867-00	CARBON	33K	5%	1/6W	
R086	1-247-823-00	CARBON	470	5%	1/6W	
R087	1-247-838-00	CARBON	2K	5%	1/6W	
R088	1-247-875-00	CARBON	68K	5%	1/6W	
R089	1-247-867-00	CARBON	33K	5%	1/6W	
R090	1-247-831-00	CARBON	1K	5%	1/6W	
R091	1-247-879-00	CARBON	100K	5%	1/6W	
R092	1-247-846-00	CARBON	4.3K	5%	1/6W	
R093	1-247-835-00	CARBON	1.5K	5%	1/6W	
R094	1-247-855-00	CARBON	10K	5%	1/6W	
R095	1-247-853-00	CARBON	8.2K	5%	1/6W	
R096	1-247-855-00	CARBON	10K	5%	1/6W	
R097	1-247-855-00	CARBON	10K	5%	1/6W	
R098	1-247-867-00	CARBON	33K	5%	1/6W	
R099	1-247-831-00	CARBON	1K	5%	1/6W	
R100	1-247-855-00	CARBON	10K	5%	1/6W	
R101	1-247-866-00	CARBON	30K	5%	1/6W	
R102	1-247-835-00	CARBON	1.5K	5%	1/6W	
R103	1-247-839-00	CARBON	2.2K	5%	1/6W	
R104	1-247-807-00	CARBON	100	5%	1/6W	
R105	1-247-855-00	CARBON	10K	5%	1/6W	
R106	1-247-831-00	CARBON	1K	5%	1/6W	
R107	1-247-821-00	CARBON	390	5%	1/6W	
R108	1-247-821-00	CARBON	390	5%	1/6W	
R109	1-247-831-00	CARBON	1K	5%	1/6W	
R110	1-247-835-00	CARBON	1.5K	5%	1/6W	
R111	1-247-831-00	CARBON	1K	5%	1/6W	
R112	1-247-855-00	CARBON	10K	5%	1/6W	
R113	1-247-863-00	CARBON	22K	5%	1/6W	
R114	1-247-855-00	CARBON	10K	5%	1/6W	
R115	1-247-863-00	CARBON	22K	5%	1/6W	
R116	1-247-867-00	CARBON	33K	5%	1/6W	
R117	1-247-867-00	CARBON	33K	5%	1/6W	
R118	1-247-867-00	CARBON	33K	5%	1/6W	
R119	1-247-843-00	CARBON	3.3K	5%	1/6W	
R120	1-247-855-00	CARBON	10K	5%	1/6W	
R121	1-247-855-00	CARBON	10K	5%	1/6W	
R122	1-247-867-00	CARBON	33K	5%	1/6W	
R123	1-247-831-00	CARBON	1K	5%	1/6W	
R124	1-247-825-00	CARBON	560	5%	1/6W	
R125	1-247-860-00	CARBON	16K	5%	1/6W	
R126	1-247-873-00	CARBON	56K	5%	1/6W	
R127	1-247-831-00	CARBON	1K	5%	1/6W	
R128	1-247-824-00	CARBON	510	5%	1/6W	
R129	1-247-838-00	CARBON	2K	5%	1/6W	
R130	1-247-838-00	CARBON	2K	5%	1/6W	
R131	1-247-855-00	CARBON	10K	5%	1/6W	
R132	1-247-855-00	CARBON	10K	5%	1/6W	
R133	1-247-843-00	CARBON	3.3K	5%	1/6W	
R134	1-247-855-00	CARBON	10K	5%	1/6W	
R135	1-247-843-00	CARBON	3.3K	5%	1/6W	
R136	1-247-855-00	CARBON	10K	5%	1/6W	
R137	1-247-855-00	CARBON	10K	5%	1/6W	
R138	1-247-855-00	CARBON	10K	5%	1/6W	
R139	1-247-823-00	CARBON	470	5%	1/6W	
R140	1-247-823-00	CARBON	470	5%	1/6W	
R141	1-247-859-00	CARBON	15K	5%	1/6W	
R142	1-247-864-00	CARBON	24K	5%	1/6W	
R143	1-247-831-00	CARBON	1K	5%	1/6W	
R144	1-247-826-00	CARBON	620	5%	1/6W	
R145	1-247-838-00	CARBON	2K	5%	1/6W	
R146	1-247-844-00	CARBON	3.6K	5%	1/6W	
R147	1-247-824-00	CARBON	510	5%	1/6W	
R148	1-247-824-00	CARBON	510	5%	1/6W	
R149	1-247-824-00	CARBON	510	5%	1/6W	
R150	1-247-824-00	CARBON	510	5%	1/6W	
R151	1-247-855-00	CARBON	10K	5%	1/6W	
R152	1-247-855-00	CARBON	10K	5%	1/6W	
R153	1-247-831-00	CARBON	1K	5%	1/6W	
R154	1-247-855-00	CARBON	10K	5%	1/6W	
R155	1-247-855-00	CARBON	10K	5%	1/6W	
R156	1-247-824-00	CARBON	510	5%	1/6W	
R157	1-247-824-00	CARBON	510	5%	1/6W	
R158	1-247-815-00	CARBON	220	5%	1/6W	
R159	1-247-848-00	CARBON	5.1K	5%	1/6W	
R160	1-247-871-00	CARBON	47K	5%	1/6W	
R161	1-247-855-00	CARBON	10K	5%	1/6W	
R162	1-247-841-00	CARBON	2.7K	5%	1/6W	
R163	1-247-850-00	CARBON	6.2K	5%	1/6W	
R164	1-247-848-00	CARBON	5.1K	5%	1/6W	
R165	1-247-841-00	CARBON	2.7K	5%	1/6W	
R166	1-247-875-00	CARBON	68K	5%	1/6W	
R167	1-247-859-00	CARBON	15K	5%	1/6W	
R168	1-247-831-00	CARBON	1K	5%	1/6W	
R169	1-247-839-00	CARBON	2.2K	5%	1/6W	
R170	1-247-882-00	CARBON	130K	5%	1/6W	
R171	1-247-879-00	CARBON	100K	5%	1/6W	
R172	1-247-895-00	CARBON	470K	5%	1/6W	
R173	1-247-857-00	CARBON	12K	5%	1/6W	
R174	1-247-838-00	CARBON	2K	5%	1/6W	
R175	1-247-869-00	CARBON	39K	5%	1/6W	
R176	1-247-878-00	CARBON	91K	5%	1/6W	

When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description				Remark
R177	1-247-847-00	CARBON	4.7K	5%	1/6W	
R178	1-247-859-00	CARBON	15K	5%	1/6W	
R179	1-247-855-00	CARBON	10K	5%	1/6W	
R180	1-247-879-00	CARBON	100K	5%	1/6W	
R181	1-247-875-00	CARBON	68K	5%	1/6W	
R182	1-247-855-00	CARBON	10K	5%	1/6W	
R183	1-247-867-00	CARBON	33K	5%	1/6W	
R184	1-247-828-00	CARBON	750	5%	1/6W	
R185	1-247-831-00	CARBON	1K	5%	1/6W	
R186	1-247-830-00	CARBON	910	5%	1/6W	
R187	1-247-853-00	CARBON	8.2K	5%	1/6W	
R188	1-247-855-00	CARBON	10K	5%	1/6W	
R189	1-247-858-00	CARBON	13K	5%	1/6W	
R190	1-247-875-00	CARBON	68K	5%	1/6W	
R191	1-247-882-00	CARBON	130K	5%	1/6W	
R192	1-247-887-00	CARBON	220K	5%	1/6W	
R193	1-247-831-00	CARBON	1K	5%	1/6W	
R194	1-247-831-00	CARBON	1K	5%	1/6W	
R195	1-247-830-00	CARBON	910	5%	1/6W	
R196	1-247-837-00	CARBON	1.8K	5%	1/6W	
R197	1-247-822-00	CARBON	430	5%	1/6W	
R198	1-247-855-00	CARBON	10K	5%	1/6W	
R199	1-247-838-00	CARBON	2K	5%	1/6W	
R200	1-247-873-00	CARBON	56K	5%	1/6W	
R201	1-247-873-00	CARBON	56K	5%	1/6W	
R202	1-247-879-00	CARBON	100K	5%	1/6W	
R203	1-247-879-00	CARBON	100K	5%	1/6W	
R204	1-247-855-00	CARBON	10K	5%	1/6W	
R205	1-247-871-00	CARBON	47K	5%	1/6W	
R206	1-247-879-00	CARBON	100K	5%	1/6W	
R207	1-247-855-00	CARBON	10K	5%	1/6W	
R209	1-247-814-00	CARBON	200	5%	1/6W	
R210	1-247-808-00	CARBON	110	5%	1/6W	
R211	1-247-833-00	CARBON	1.2K	5%	1/6W	
R212	1-247-863-00	CARBON	22K	5%	1/6W	
R213	1-247-839-00	CARBON	2.2K	5%	1/6W	
R214	1-247-863-00	CARBON	22K	5%	1/6W	
R215	1-247-857-00	CARBON	12K	5%	1/6W	
R216	1-247-858-00	CARBON	13K	5%	1/6W	
R217	1-247-855-00	CARBON	10K	5%	1/6W	
R218	1-247-841-00	CARBON	2.7K	5%	1/6W	
R219	1-247-863-00	CARBON	22K	5%	1/6W	
R220	1-247-855-00	CARBON	10K	5%	1/6W	
R221	1-247-855-00	CARBON	10K	5%	1/6W	
R222	1-247-855-00	CARBON	10K	5%	1/6W	
R223	1-247-831-00	CARBON	1K	5%	1/6W	
R224	1-247-831-00	CARBON	1K	5%	1/6W	
R225	1-247-839-00	CARBON	2.2K	5%	1/6W	
R227	1-247-803-00	CARBON	68	5%	1/6W	
R229	1-247-803-00	CARBON	68	5%	1/6W	
R230	1-247-827-00	CARBON	680	5%	1/6W	
R231	1-247-875-00	CARBON	68K	5%	1/6W	
R232	1-247-876-00	CARBON	75K	5%	1/6W	

Ref.No.	Part No.	Description				Remark
R234	1-247-862-00	CARBON	20K	5%	1/6W	
R236	1-247-871-00	CARBON	47K	5%	1/6W	
R237	1-247-871-00	CARBON	47K	5%	1/6W	
R238	1-247-831-00	CARBON	1K	5%	1/6W	
R240	1-247-804-00	CARBON	75	5%	1/6W	
R243	1-247-835-00	CARBON	1.5K	5%	1/6W	
R244	1-247-843-00	CARBON	3.3K	5%	1/6W	
R246	1-247-860-00	CARBON	16K	5%	1/6W	
R247	1-247-862-00	CARBON	20K	5%	1/6W	
R248	1-247-818-00	CARBON	300	5%	1/6W	
R249	1-247-838-00	CARBON	2K	5%	1/6W	
R251	1-247-876-00	CARBON	75K	5%	1/6W	
R252	1-247-875-00	CARBON	68K	5%	1/6W	
R253	1-247-818-00	CARBON	300	5%	1/6W	
R258	1-247-844-00	CARBON	3.6K	5%	1/6W	
R259	1-247-863-00	CARBON	22K	5%	1/6W	
R260⚠	1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R264	1-247-863-00	CARBON	22K	5%	1/6W	
R265	1-247-879-00	CARBON	100K	5%	1/6W	
R266	1-247-818-00	CARBON	300	5%	1/6W	
R267	1-247-838-00	CARBON	2K	5%	1/6W	
R269	1-247-827-00	CARBON	680	5%	1/6W	
R270	1-247-839-00	CARBON	2.2K	5%	1/6W	
R271⚠	1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R272	1-247-803-00	CARBON	68	5%	1/6W	
R273	1-247-875-00	CARBON	68K	5%	1/6W	
R274	1-247-831-00	CARBON	1K	5%	1/6W	
R276	1-247-871-00	CARBON	47K	5%	1/6W	
R278	1-247-855-00	CARBON	10K	5%	1/6W	
R279	1-247-804-00	CARBON	75	5%	1/6W	
R280	1-247-867-00	CARBON	33K	5%	1/6W	
R281	1-247-807-00	CARBON	100	5%	1/6W	
R282	1-247-847-00	CARBON	4.7K	5%	1/6W	
R303	1-247-855-00	CARBON	10K	5%	1/6W	
R304	1-247-831-00	CARBON	1K	5%	1/6W	
R311	1-247-843-00	CARBON	3.3K	5%	1/6W	
R312	1-247-846-00	CARBON	4.3K	5%	1/6W	
R313	1-247-843-00	CARBON	3.3K	5%	1/6W	
R314	1-247-846-00	CARBON	4.3K	5%	1/6W	
R315	1-247-855-00	CARBON	10K	5%	1/6W	
R316	1-247-900-00	CARBON	750K	5%	1/6W	
R317	1-247-855-00	CARBON	10K	5%	1/6W	
R318	1-247-889-00	CARBON	270K	5%	1/6W	
R319	1-247-889-00	CARBON	270K	5%	1/6W	
R320	1-247-867-00	CARBON	33K	5%	1/6W	

VARIABLE RESISTOR

RV001	1-228-749-00	RES, ADJ, CARBON 22K
RV002	1-228-746-00	RES, ADJ, CARBON 2.2K
RV003	1-228-744-00	RES, ADJ, CARBON 470
RV004	1-228-995-00	RES, ADJ, METAL GLAZE 22K
RV005	1-228-748-00	RES, ADJ, CARBON 10K
RV006	1-228-995-00	RES, ADJ, METAL GLAZE 22K
RV007	1-228-989-00	RES, ADJ, METAL GLAZE 470
RV008	1-228-993-00	RES, ADJ, METAL GLAZE 4.7K

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description	Remark
RV009	1-228-750-00	RES, ADJ, CARBON 47K	
RV010	1-228-750-00	RES, ADJ, CARBON 47K	
RV011	1-228-750-00	RES, ADJ, CARBON 47K	
RV012	1-228-991-00	RES, ADJ, METAL GLAZE 2.2K	
RV013	1-228-989-00	RES, ADJ, METAL GLAZE 470	

TRANSFORMER

Ref.No.	Part No.	Description	Remark
T001	1-426-093-00	COIL, REC C BPT	

CRYSTAL

Ref.No.	Part No.	Description	Remark
X001	1-527-345-00	CRYSTAL, OSC 4.43MHZ	

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♦:A-6713-182-A AM-4 BOARD, COMPLETE
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♦:3-681-225-00 CASE (MAIN), SHIELD, AM

♦:3-681-226-00 LID, UPPER, SHIELD CASE, AM

CAPACITOR

Ref.No.	Part No.	Description				Remark
C501	1-123-380-00	ELECT	1MF	20%	50V	
C502	1-161-002-00	CERAMIC	0.0012MF	10%	25V	
C503	1-161-271-00	CERAMIC	100PF	5%	50V	
C504	1-123-330-00	ELECT	22MF	20%	16V	
C505	1-161-015-00	CERAMIC	0.015MF	10%	25V	
C506	1-123-356-00	ELECT	10MF	20%	16V	
C507	1-123-328-00	ELECT	4.7MF	20%	25V	
C508	1-123-356-00	ELECT	10MF	20%	16V	
C509	1-161-017-00	CERAMIC	0.022MF	10%	25V	
C510	1-123-356-00	ELECT	10MF	20%	16V	
C511	1-123-333-00	ELECT	100MF	20%	16V	
C512	1-123-306-00	ELECT	47MF	20%	10V	
C513	1-123-328-00	ELECT	4.7MF	20%	25V	
C514	1-123-356-00	ELECT	10MF	20%	16V	
C515	1-161-009-00	CERAMIC	0.0047MF	10%	25V	
C516	1-123-356-00	ELECT	10MF	20%	16V	
C517	1-123-356-00	ELECT	10MF	20%	16V	
C518	1-123-356-00	ELECT	10MF	20%	16V	
C519	1-123-356-00	ELECT	10MF	20%	16V	
C520	1-123-356-00	ELECT	10MF	20%	16V	
C521	1-161-323-00	CERAMIC	0.001MF	10%	50V	
C522	1-123-356-00	ELECT	10MF	20%	16V	
C523	1-161-010-00	CERAMIC	0.0056MF	10%	25V	
C524	1-123-356-00	ELECT	10MF	20%	16V	
C525	1-108-593-00	MYLAR	0.039MF	5%	50V	
C526	1-108-555-00	MYLAR	0.001MF	5%	50V	
C527	1-123-607-00	ELECT	0.1MF	20%	50V	
C528	1-108-579-00	MYLAR	0.01MF	5%	50V	
C529	1-108-573-00	MYLAR	0.0056MF	5%	50V	
C530	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C531	1-123-328-00	ELECT	4.7MF	20%	25V	
C532	1-123-295-00	ELECT	100MF	20%	6.3V	
C533	1-123-380-00	ELECT	1MF	20%	50V	
C534	1-161-315-00	CERAMIC	220PF	10%	50V	
C535	1-123-328-00	ELECT	4.7MF	20%	25V	
C536	1-123-381-00	ELECT	2.2MF	20%	50V	
C537	1-123-328-00	ELECT	4.7MF	20%	25V	
C538	1-123-356-00	ELECT	10MF	20%	16V	
C601	1-123-380-00	ELECT	1MF	20%	50V	
C602	1-161-002-00	CERAMIC	0.0012MF	10%	25V	
C603	1-161-271-00	CERAMIC	100PF	5%	50V	
C604	1-123-330-00	ELECT	22MF	20%	16V	
C605	1-161-015-00	CERAMIC	0.015MF	10%	25V	
C606	1-123-356-00	ELECT	10MF	20%	16V	
C607	1-123-328-00	ELECT	4.7MF	20%	25V	
C608	1-123-356-00	ELECT	10MF	20%	16V	
C609	1-161-017-00	CERAMIC	0.022MF	10%	25V	
C610	1-123-356-00	ELECT	10MF	20%	16V	
C611	1-123-333-00	ELECT	100MF	20%	16V	
C612	1-123-306-00	ELECT	47MF	20%	10V	
C613	1-123-328-00	ELECT	4.7MF	20%	25V	
C614	1-123-356-00	ELECT	10MF	20%	16V	
C615	1-161-009-00	CERAMIC	0.0047MF	10%	25V	
C616	1-123-356-00	ELECT	10MF	20%	16V	
C617	1-123-356-00	ELECT	10MF	20%	16V	
C618	1-123-356-00	ELECT	10MF	20%	16V	
C619	1-123-356-00	ELECT	10MF	20%	16V	
C620	1-123-356-00	ELECT	10MF	20%	16V	
C621	1-161-323-00	CERAMIC	0.001MF	10%	50V	
C622	1-123-356-00	ELECT	10MF	20%	16V	
C623	1-161-010-00	CERAMIC	0.0056MF	10%	25V	
C624	1-123-356-00	ELECT	10MF	20%	16V	
C625	1-108-593-00	MYLAR	0.039MF	5%	50V	
C626	1-108-555-00	MYLAR	0.001MF	5%	50V	
C627	1-123-607-00	ELECT	0.1MF	20%	50V	
C628	1-108-579-00	MYLAR	0.01MF	5%	50V	
C629	1-108-573-00	MYLAR	0.0056MF	5%	50V	
C630	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C631	1-123-328-00	ELECT	4.7MF	20%	25V	
C632	1-123-295-00	ELECT	100MF	20%	6.3V	
C633	1-123-380-00	ELECT	1MF	20%	50V	
C634	1-161-315-00	CERAMIC	220PF	10%	50V	
C635	1-123-328-00	ELECT	4.7MF	20%	25V	
C636	1-123-381-00	ELECT	2.2MF	20%	50V	
C637	1-123-328-00	ELECT	4.7MF	20%	25V	
C638	1-123-356-00	ELECT	10MF	20%	16V	
C701	1-136-215-00	FILM	0.0068MF	10%	400V	
C702	1-161-017-00	CERAMIC	0.022MF	10%	25V	

When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description			Remark
C703	1-161-017-00	CERAMIC	0.022MF	10%	25V
C704	1-123-318-00	ELECT	33MF	20%	16V
C705	1-123-332-00	ELECT	47MF	20%	16V
C706	1-123-306-00	ELECT	47MF	20%	10V
C707	1-123-330-00	ELECT	22MF	20%	16V
C708	1-123-380-00	ELECT	1MF	20%	50V
C709	1-123-318-00	ELECT	33MF	20%	16V
C710	1-123-332-00	ELECT	47MF	20%	16V
C711	1-123-332-00	ELECT	47MF	20%	16V
C713	1-161-013-00	CERAMIC	0.01MF	10%	25V
C714	1-123-306-00	ELECT	47MF	20%	10V
C715	1-123-356-00	ELECT	10MF	20%	16V
C717	1-123-356-00	ELECT	10MF	20%	16V
C719	1-123-356-00	ELECT	10MF	20%	16V
C720	1-161-013-00	CERAMIC	0.01MF	10%	25V
C722	1-123-356-00	ELECT	10MF	20%	16V
C723	1-123-356-00	ELECT	10MF	20%	16V
C724	1-123-356-00	ELECT	10MF	20%	16V
C725	1-123-356-00	ELECT	10MF	20%	16V
C726	1-123-356-00	ELECT	10MF	20%	16V
C727	1-123-356-00	ELECT	10MF	20%	16V
C729	1-123-356-00	ELECT	10MF	20%	16V
C730	1-123-356-00	ELECT	10MF	20%	16V
C731	1-123-306-00	ELECT	47MF	20%	10V
C732	1-123-330-00	ELECT	22MF	20%	16V
C751	1-123-822-00	ELECT	47MF	20%	10V

CONNECTOR

CN501	♠:1-564-033-21	PIN, CONNECTOR 8P
CN502	♠:1-564-032-00	PIN, CONNECTOR 7P
CN503	♠:1-564-030-00	PIN, CONNECTOR 5P (UK MODEL)
	♠:1-564-031-31	PIN, CONNECTOR 6P (AEP MODEL)
CN504	♠:1-564-033-31	PIN, CONNECTOR 8P
CN505	♠:1-564-028-41	PIN, CONNECTOR 3P

TRIMMER

CV501	1-141-215-00	CAP, TRIMMER
CV601	1-141-215-00	CAP, TRIMMER

DIODE

D501	8-719-815-55	DIODE 1S1555
D601	8-719-815-55	DIODE 1S1555
D701	8-719-815-55	DIODE 1S1555
D702	8-719-815-55	DIODE 1S1555
D703	8-719-815-55	DIODE 1S1555
D704	8-719-815-55	DIODE 1S1555
D705	=>8-719-182-24	DIODE RD8.2E-B2Z
D706	=>8-719-182-24	DIODE RD8.2E-B2Z
D707	8-719-100-68	DIODE RD13EB2
D708	8-719-815-55	DIODE 1S1555

Ref.No.	Part No.	Description	Remark
D709	8-719-815-55	DIODE 1S1555	
D710	8-719-815-55	DIODE 1S1555	
D711	8-719-000-06	DIODE MC921	
D712	8-719-815-55	DIODE 1S1555	

IC

IC501	8-759-800-30	IC LA7040
IC502	8-759-240-53	IC TC4053BP
IC503	8-759-145-58	IC UPC4558C
IC601	8-759-800-30	IC LA7040
IC602	8-759-240-53	IC TC4053BP
IC603	8-759-145-58	IC UPC4558C
IC701	8-759-705-62	IC NJM4562D-D
IC703	8-759-100-08	IC UPC1571C
IC704	8-759-902-15	IC BA3402

COIL

L501	1-408-583-00	MICRO INDUCTOR 33MMH
L601	1-408-583-00	MICRO INDUCTOR 33MMH
L701	1-408-579-00	MICRO INDUCTOR 220UH

FILTER

LPF501	1-235-272-00	FILTER, LOW PASS
LPF601	1-235-272-00	FILTER, LOW PASS

TRANSISTOR

Q501	=>8-729-245-83	TRANSISTOR 2SC2458
Q502	=>8-729-245-83	TRANSISTOR 2SC2458
Q503	=>8-729-245-83	TRANSISTOR 2SC2458
Q504	=>8-729-245-83	TRANSISTOR 2SC2458
Q507	8-729-117-54	TRANSISTOR 2SA1175
Q508	=>8-729-245-83	TRANSISTOR 2SC2458
Q509	8-729-117-54	TRANSISTOR 2SA1175
Q601	=>8-729-245-83	TRANSISTOR 2SC2458
Q602	=>8-729-245-83	TRANSISTOR 2SC2458
Q603	=>8-729-245-83	TRANSISTOR 2SC2458
Q604	=>8-729-245-83	TRANSISTOR 2SC2458
Q607	8-729-117-54	TRANSISTOR 2SA1175
Q608	=>8-729-245-83	TRANSISTOR 2SC2458
Q609	8-729-117-54	TRANSISTOR 2SA1175
Q701	8-729-967-32	TRANSISTOR 2SC2673
Q703	8-729-900-89	TRANSISTOR DTC144ES
Q704	8-729-900-89	TRANSISTOR DTC144ES
Q705	8-729-900-89	TRANSISTOR DTC144ES
Q706	8-729-117-54	TRANSISTOR 2SA1175
Q707	8-729-900-89	TRANSISTOR DTC144ES

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description				Remark
Q708 =>	8-729-245-83	TRANSISTOR 2SC2458				
Q709	8-729-967-32	TRANSISTOR 2SC2673				
Q710	8-729-988-12	TRANSISTOR 2SA881				
Q711	8-729-208-42	TRANSISTOR 2SA1184				
Q712	8-729-117-54	TRANSISTOR 2SA1175				
		RESISTOR				
R501	1-246-425-00	CARBON	10	5%	1/4W	
R502	1-246-521-00	CARBON	100K	5%	1/4W	
R503	1-246-457-00	CARBON	220	5%	1/4W	
R504	1-246-529-00	CARBON	220K	5%	1/4W	
R505	1-246-499-00	CARBON	12K	5%	1/4W	
R506	1-246-491-00	CARBON	5.6K	5%	1/4W	
R507	1-246-513-00	CARBON	47K	5%	1/4W	
R508	1-246-455-00	CARBON	180	5%	1/4W	
R509	1-246-493-00	CARBON	6.8K	5%	1/4W	
R510	1-247-831-00	CARBON	1K	5%	1/6W	
R511	1-246-465-00	CARBON	470	5%	1/4W	
R512	1-246-485-00	CARBON	3.3K	5%	1/4W	
R513	1-246-491-00	CARBON	5.6K	5%	1/4W	
R514	1-246-489-00	CARBON	4.7K	5%	1/4W	
R515	1-246-505-00	CARBON	22K	5%	1/4W	
R516	1-246-497-00	CARBON	10K	5%	1/4W	
R517	1-246-521-00	CARBON	100K	5%	1/4W	
R519	1-246-531-00	CARBON	270K	5%	1/4W	
R520	1-246-509-00	CARBON	33K	5%	1/4W	
R521	1-246-495-00	CARBON	8.2K	5%	1/4W	
R522	1-246-509-00	CARBON	33K	5%	1/4W	
R523	1-246-485-00	CARBON	3.3K	5%	1/4W	
R524	1-246-491-00	CARBON	5.6K	5%	1/4W	
R525	1-246-489-00	CARBON	4.7K	5%	1/4W	
R526	1-246-513-00	CARBON	47K	5%	1/4W	
R527	1-246-489-00	CARBON	4.7K	5%	1/4W	
R528	1-246-529-00	CARBON	220K	5%	1/4W	
R529	1-246-521-00	CARBON	100K	5%	1/4W	
R530	1-246-529-00	CARBON	220K	5%	1/4W	
R531	1-246-513-00	CARBON	47K	5%	1/4W	
R532	1-246-489-00	CARBON	4.7K	5%	1/4W	
R533	1-246-467-00	CARBON	560	5%	1/4W	
R534	1-246-517-00	CARBON	68K	5%	1/4W	
R536	1-246-503-00	CARBON	18K	5%	1/4W	
R537	1-246-465-00	CARBON	470	5%	1/4W	
R540	1-246-479-00	CARBON	1.8K	5%	1/4W	
R543	1-214-721-00	METAL	470	1%	1/4W	
R544	1-214-757-00	METAL	15K	1%	1/4W	
R545	1-214-757-00	METAL	15K	1%	1/4W	
R546	1-214-771-00	METAL	56K	1%	1/4W	
R547	1-246-509-00	CARBON	33K	5%	1/4W	
R548	1-246-481-00	CARBON	2.2K	5%	1/4W	
R549	1-246-489-00	CARBON	4.7K	5%	1/4W	
R550	1-246-508-00	CARBON	30K	5%	1/4W	
R551	1-246-501-00	CARBON	15K	5%	1/4W	
R552	1-246-501-00	CARBON	15K	5%	1/4W	
R553	1-246-485-00	CARBON	3.3K	5%	1/4W	
R554	1-214-764-00	METAL	30K	1%	1/4W	
R555	1-246-529-00	CARBON	220K	5%	1/4W	
R556	1-246-512-00	CARBON	43K	5%	1/4W	
R557	1-246-513-00	CARBON	47K	5%	1/4W	
R558	1-246-513-00	CARBON	47K	5%	1/4W	
R559	1-246-541-00	CARBON	680K	5%	1/4W	
R560	1-246-515-00	CARBON	56K	5%	1/4W	
R561	1-246-505-00	CARBON	22K	5%	1/4W	
R563	1-246-495-00	CARBON	8.2K	5%	1/4W	
R601	1-246-425-00	CARBON	10	5%	1/4W	
R602	1-246-521-00	CARBON	100K	5%	1/4W	
R603	1-246-457-00	CARBON	220	5%	1/4W	
R604	1-246-529-00	CARBON	220K	5%	1/4W	
R605	1-246-499-00	CARBON	12K	5%	1/4W	
R606	1-246-491-00	CARBON	5.6K	5%	1/4W	
R607	1-246-513-00	CARBON	47K	5%	1/4W	
R608	1-246-455-00	CARBON	180	5%	1/4W	
R609	1-246-493-00	CARBON	6.8K	5%	1/4W	
R610	1-247-831-00	CARBON	1K	5%	1/6W	
R611	1-246-465-00	CARBON	470	5%	1/4W	
R612	1-246-485-00	CARBON	3.3K	5%	1/4W	
R613	1-246-491-00	CARBON	5.6K	5%	1/4W	
R614	1-246-489-00	CARBON	4.7K	5%	1/4W	
R615	1-246-505-00	CARBON	22K	5%	1/4W	
R616	1-246-497-00	CARBON	10K	5%	1/4W	
R617	1-246-521-00	CARBON	100K	5%	1/4W	
R619	1-246-531-00	CARBON	270K	5%	1/4W	
R620	1-246-509-00	CARBON	33K	5%	1/4W	
R621	1-246-495-00	CARBON	8.2K	5%	1/4W	
R622	1-246-509-00	CARBON	33K	5%	1/4W	
R623	1-246-485-00	CARBON	3.3K	5%	1/4W	
R624	1-246-491-00	CARBON	5.6K	5%	1/4W	
R625	1-246-489-00	CARBON	4.7K	5%	1/4W	
R626	1-246-513-00	CARBON	47K	5%	1/4W	
R627	1-246-489-00	CARBON	4.7K	5%	1/4W	
R628	1-246-529-00	CARBON	220K	5%	1/4W	
R629	1-246-521-00	CARBON	100K	5%	1/4W	
R630	1-246-529-00	CARBON	220K	5%	1/4W	
R631	1-246-513-00	CARBON	47K	5%	1/4W	
R632	1-246-489-00	CARBON	4.7K	5%	1/4W	
R633	1-246-467-00	CARBON	560	5%	1/4W	
R634	1-246-517-00	CARBON	68K	5%	1/4W	
R636	1-246-503-00	CARBON	18K	5%	1/4W	
R637	1-246-465-00	CARBON	470	5%	1/4W	
R640	1-246-479-00	CARBON	1.8K	5%	1/4W	
R643	1-214-721-00	METAL	470	1%	1/4W	
R644	1-214-757-00	METAL	15K	1%	1/4W	
R645	1-214-757-00	METAL	15K	1%	1/4W	
R646	1-214-771-00	METAL	56K	1%	1/4W	
R647	1-246-509-00	CARBON	33K	5%	1/4W	
R648	1-246-481-00	CARBON	2.2K	5%	1/4W	
R649	1-246-489-00	CARBON	4.7K	5%	1/4W	
R650	1-246-508-00	CARBON	30K	5%	1/4W	
R651	1-246-501-00	CARBON	15K	5%	1/4W	
R652	1-246-501-00	CARBON	15K	5%	1/4W	
R653	1-246-485-00	CARBON	3.3K	5%	1/4W	
R654	1-214-764-00	METAL	30K	1%	1/4W	
R655	1-246-529-00	CARBON	220K	5%	1/4W	
R656	1-246-512-00	CARBON	43K	5%	1/4W	
R657	1-246-513-00	CARBON	47K	5%	1/4W	

When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description				Remark
R658	1-246-513-00	CARBON	47K	5%	1/4W	
R659	1-247-899-00	CARBON	680K	5%	1/6W	
R660	1-246-515-00	CARBON	56K	5%	1/4W	
R661	1-246-505-00	CARBON	22K	5%	1/4W	
R662	1-246-496-00	CARBON	9.1K	5%	1/4W	
R663	1-246-495-00	CARBON	8.2K	5%	1/4W	
R701	1-246-511-00	CARBON	39K	5%	1/4W	
R702	1-246-505-00	CARBON	22K	5%	1/4W	
R703	1-246-505-00	CARBON	22K	5%	1/4W	
R704	1-246-511-00	CARBON	39K	5%	1/4W	
R705	1-246-503-00	CARBON	18K	5%	1/4W	
R706	1-246-503-00	CARBON	18K	5%	1/4W	
R707	1-246-505-00	CARBON	22K	5%	1/4W	
R708	1-246-505-00	CARBON	22K	5%	1/4W	
R710	1-246-497-00	CARBON	10K	5%	1/4W	
R712	1-246-473-00	CARBON	1K	5%	1/4W	
R713	1-247-859-00	CARBON	15K	5%	1/6W	
R714	1-246-473-00	CARBON	1K	5%	1/4W	
R716	1-246-515-00	CARBON	56K	5%	1/4W	
R718	1-246-489-00	CARBON	4.7K	5%	1/4W	
R720	1-246-513-00	CARBON	47K	5%	1/4W	
R721	1-246-513-00	CARBON	47K	5%	1/4W	
R723	1-246-481-00	CARBON	2.2K	5%	1/4W	
R724	1-246-481-00	CARBON	2.2K	5%	1/4W	
R725	1-246-481-00	CARBON	2.2K	5%	1/4W	
R726 ⚠	1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R727	1-246-489-00	CARBON	4.7K	5%	1/4W	
R729	1-246-461-00	CARBON	330	5%	1/4W	
R730	1-246-521-00	CARBON	100K	5%	1/4W	
R731 ⚠	1-212-869-00	FUSIBLE	33	5%	1/4W	F
R732	1-246-481-00	CARBON	2.2K	5%	1/4W	
R733	1-246-475-00	CARBON	1.2K	5%	1/4W	
R734 ⚠	1-212-869-00	FUSIBLE	33	5%	1/4W	F
R735	1-246-505-00	CARBON	22K	5%	1/4W	
R 736	1-246-475-00	CARBON	1.2K	5%	1/4W	
R738	1-246-497-00	CARBON	10K	5%	1/4W	
R739	1-246-511-00	CARBON	39K	5%	1/4W	
R740	1-246-437-00	CARBON	33	5%	1/4W	
R741	1-246-505-00	CARBON	22K	5%	1/4W	
R742	1-246-449-00	CARBON	100	5%	1/4W	
R743 ⚠	1-213-137-00	METAL OXIDE	330	5%	1W	F
R744	1-246-497-00	CARBON	10K	5%	1/4W	
R745	1-246-497-00	CARBON	10K	5%	1/4W	
R746	1-246-505-00	CARBON	22K	5%	1/4W	
R747	1-247-863-00	CARBON	22K	5%	1/6W	
R748	1-246-545-00	CARBON	1M	5%	1/4W	
R749	1-246-457-00	CARBON	220	5%	1/4W	
R760	1-246-497-00	CARBON	10K	5%	1/4W	
R761	1-246-521-00	CARBON	100K	5%	1/4W	
R763	1-246-489-00	CARBON	4.7K	5%	1/4W	
R764	1-246-505-00	CARBON	22K	5%	1/4W	

Ref.No.	Part No.	Description	Remark
		VARIABLE RESISTOR	
RV501	1-228-749-00	RES, ADJ, CARBON 22K	
RV502	1-228-748-00	RES, ADJ, CARBON 10K	
RV503	1-228-749-00	RES, ADJ, CARBON 22K	
RV504	1-228-745-00	RES, ADJ, CARBON 1K	
RV601	1-228-749-00	RES, ADJ, CARBON 22K	
RV602	1-228-748-00	RES, ADJ, CARBON 10K	
RV603	1-228-749-00	RES, ADJ, CARBON 22K	
RV604	1-228-745-00	RES, ADJ, CARBON 1K	
RV701	1-228-749-00	RES, ADJ, CARBON 22K	
		RELAY	
RY701	1-515-519-00	MICRO RELAY	
		TRANSFORMER	
T701	1-433-272-00	COIL, BIAS OSCILLATOR	
TPR501	1-409-374-00	COIL, TRAP	
TPR601	1-409-374-00	COIL, TRAP	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description			Remark
	♠:A-6715-187-A	SS-16 BOARD, COMPLETE **********************			
	♠:3-681-170-00	HEAT SINK, S			
	7-621-770-87	SCREW +B 2.6X5			

CAPACITOR

C301	1-123-330-00	ELECT	22MF	20%	16V
C302	1-130-516-51	MYLAR	0.01MF	10%	50V
C303	1-130-516-51	MYLAR	0.01MF	10%	50V
C304	1-123-354-00	ELECT	3.3MF	20%	50V
C305	1-161-021-00	CERAMIC	0.047MF	10%	25V
C306	1-123-354-00	ELECT	3.3MF	20%	50V
C307	1-161-021-00	CERAMIC	0.047MF	10%	25V
C308	1-123-354-00	ELECT	3.3MF	20%	50V
C309	1-161-021-00	CERAMIC	0.047MF	10%	25V
C310	1-130-516-51	MYLAR	0.01MF	10%	50V
C311	1-123-296-00	ELECT	220MF	20%	6.3V
C312	1-123-328-00	ELECT	4.7MF	20%	25V
C313	1-161-013-00	CERAMIC	0.01MF	10%	25V
C314	1-123-306-00	ELECT	47MF	20%	10V
C315	1-108-605-00	MYLAR	0.12MF	5%	50V
C316	1-127-468-00	ELECT(SOLID)	0.22MF	5%	16V
C317	1-123-333-00	ELECT	100MF	20%	16V
C318	1-130-479-00	MYLAR	0.0047MF	5%	50V
C319	1-102-106-00	CERAMIC	100PF	10%	50V
C320	1-123-381-00	ELECT	2.2MF	20%	50V
C321	1-123-296-00	ELECT	220MF	20%	6.3V
C322	1-161-021-00	CERAMIC	0.047MF	10%	25V
C323	1-131-357-00	TANTALUM	4.7MF	20%	25V
C324	1-123-381-00	ELECT	2.2MF	20%	50V
C325	1-131-357-00	TANTALUM	4.7MF	20%	25V
C326	1-123-381-00	ELECT	2.2MF	20%	50V
C327	1-161-016-00	CERAMIC	0.018MF	10%	25V
C328	1-161-013-00	CERAMIC	0.01MF	10%	25V
C329	1-123-356-00	ELECT	10MF	20%	16V
C330	1-161-016-00	CERAMIC	0.018MF	10%	25V
C331	1-161-016-00	CERAMIC	0.018MF	10%	25V
C332	1-123-317-00	ELECT	22MF	20%	16V
C333	1-124-429-00	ELECT	0.68MF	20%	50V
C334	1-161-021-00	CERAMIC	0.047MF	10%	25V
C335	1-161-017-00	CERAMIC	0.022MF	10%	25V
C336	1-161-002-00	CERAMIC	0.0012MF	10%	25V
C337	1-161-016-00	CERAMIC	0.018MF	10%	25V
C338	1-161-013-00	CERAMIC	0.01MF	10%	25V
C339	1-161-016-00	CERAMIC	0.018MF	10%	25V
C340	1-161-013-00	CERAMIC	0.01MF	10%	25V
C341	1-123-354-00	ELECT	3.3MF	20%	50V
C342	1-161-019-00	CERAMIC	0.033MF	10%	25V
C343	1-123-330-00	ELECT	22MF	20%	16V
C344	1-161-019-00	CERAMIC	0.033MF	10%	25V
C345	1-161-013-00	CERAMIC	0.01MF	10%	25V
C346	1-161-021-00	CERAMIC	0.047MF	10%	25V
C347	1-123-380-00	ELECT	1MF	20%	50V
C348	1-127-472-00	ELECT(SOLID)	1MF	5%	16V
C350	1-123-333-00	ELECT	100MF	20%	16V
C351	1-123-306-00	ELECT	47MF	20%	10V
C352	1-161-021-00	CERAMIC	0.047MF	10%	25V
C355	1-123-328-00	ELECT	4.7MF	20%	25V
C356	1-123-380-00	ELECT	1MF	20%	50V
C357	1-123-333-00	ELECT	100MF	20%	16V
C358	1-161-021-00	CERAMIC	0.047MF	10%	25V
C360	1-123-333-00	ELECT	100MF	20%	16V
C361	1-123-333-00	ELECT	100MF	20%	16V
C362	1-161-021-00	CERAMIC	0.047MF	10%	25V
C363	1-123-332-00	ELECT	47MF	20%	16V
C601	1-161-021-00	CERAMIC	0.047MF	10%	25V
C602	1-161-013-00	CERAMIC	0.01MF	10%	25V
C603	1-129-794-00	FILM	0.0033MF	5%	100V
C604	1-161-013-00	CERAMIC	0.01MF	10%	25V
C605	1-161-013-00	CERAMIC	0.01MF	10%	25V
C606	1-123-380-00	ELECT	1MF	20%	50V
C607	1-123-380-00	ELECT	1MF	20%	50V
C608	1-161-494-00	CERAMIC	0.022MF	30%	25V
C609	1-161-013-00	CERAMIC	0.01MF	10%	25V
C610	1-161-002-00	CERAMIC	0.0012MF	10%	25V
C611	1-161-002-00	CERAMIC	0.0012MF	10%	25V
C612	1-102-517-00	CERAMIC	30PF	5%	50V
C613	1-102-517-00	CERAMIC	30PF	5%	50V
C614	1-123-331-00	ELECT	33MF	20%	25V
C615	1-123-331-00	ELECT	33MF	20%	25V
C617	1-123-380-00	ELECT	1MF	20%	50V
C618	1-123-306-00	ELECT	47MF	20%	10V
C801	1-161-017-00	CERAMIC	0.022MF	10%	25V
C852	1-102-125-00	CERAMIC	0.0047MF		
C853	1-102-074-00	CERAMIC	0.001MF		50V

FILTER

CF601	1-527-822-00	OSCILLATOR, CERAMIC

CONNECTOR

CN301	♠:1-560-892-00	PIN, CONNECTOR 4P
CN302	1-560-466-00	PIN, CONNECTOR 3P
CN303	♠:1-560-892-00	PIN, CONNECTOR 4P
CN304	♠:1-560-892-00	PIN, CONNECTOR 4P
CN305	♠:1-560-890-00	PIN, CONNECTOR 2P
CN306	♠:1-560-895-00	PIN, CONNECTOR 7P
CN307	♠:1-560-890-00	PIN, CONNECTOR 2P
CN308	♠:1-560-892-00	PIN, CONNECTOR 4P
CN309	♠:1-560-895-00	PIN, CONNECTOR 7P
CN310	♠:1-560-891-00	PIN, CONNECTOR 3P
CN311	♠:1-560-891-00	PIN, CONNECTOR 3P
CN312	♠:1-560-895-00	PIN, CONNECTOR 7P
CN602	♠:1-560-899-00	PIN, CONNECTOR 11P
CN603	♠:1-560-890-00	PIN, CONNECTOR 2P
CN604	♠:1-560-891-00	PIN, CONNECTOR 3P
CN605	♠:1-560-890-00	PIN, CONNECTOR 2P

When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description	Remark
CN606	♦:1-560-892-00	PIN, CONNECTOR 4P	
CN607	♦:1-560-890-00	PIN, CONNECTOR 2P	
CN608	♦:1-560-892-00	PIN, CONNECTOR 4P	
CN609	♦:1-560-893-00	PIN, CONNECTOR 5P	
CN610	♦:1-560-891-00	PIN, CONNECTOR 3P	
CN611	♦:1-560-891-00	PIN, CONNECTOR 3P	
CN613	♦:1-560-894-00	PIN, CONNECTOR 6P	
CN614	♦:1-560-896-00	PIN, CONNECTOR 8P	
CN615	♦:1-560-895-00	PIN, CONNECTOR 7P	

DIODE

Ref.No.	Part No.	Description	Remark
D301	8-719-100-57	DIODE RD10EB2	
D302	8-719-000-06	DIODE MC921	
D304	8-719-911-19	DIODE 1SS119	
D306	8-719-000-06	DIODE MC921	
D308	8-719-911-19	DIODE 1SS119	
D309	8-719-911-19	DIODE 1SS119	
D311	8-719-911-19	DIODE 1SS119	
D313	8-719-911-19	DIODE 1SS119	
D314	8-719-911-19	DIODE 1SS119	
D315	8-719-911-19	DIODE 1SS119	
D316	8-719-911-19	DIODE 1SS119	
D317	8-719-911-19	DIODE 1SS119	
D325	8-719-000-04	DIODE MC911	
D326	8-719-162-07	DIODE RD6.2E-B	
D327	8-719-200-02	DIODE 10E-2	
D328	8-719-000-06	DIODE MC921	
D335	8-719-911-19	DIODE 1SS119	
D339	8-719-911-19	DIODE 1SS119	
D340	8-719-911-19	DIODE 1SS119	
D341	8-719-812-31	DIODE TLR123	
D607	8-719-911-19	DIODE 1SS119	
D608	8-719-000-12	DIODE MC931	
D610	8-719-911-19	DIODE 1SS119	
D612	8-719-911-19	DIODE 1SS119	
D613	8-719-911-19	DIODE 1SS119	
D614	8-719-911-19	DIODE 1SS119	
D616	8-719-911-19	DIODE 1SS119	
D617	8-719-911-19	DIODE 1SS119	

IC

Ref.No.	Part No.	Description	Remark
IC301	8-751-941-00	IC CX-194B-0	
IC302	8-759-135-80	IC UPC358C	
IC303	8-759-145-58	IC UPC4558C	
IC304	8-759-132-40	IC UPC324C	
IC305	8-759-240-53	IC TC4053BP	
IC306	8-759-132-40	IC UPC324C	
IC307	8-759-240-53	IC TC4053BP	
IC308	8-759-135-80	IC UPC358C	
IC601	8-759-908-37	IC MB88421-113M	

COIL

Ref.No.	Part No.	Description	Remark
L601	1-408-418-00	MICRO INDUCTOR 56UH	

IC LINK

Ref.No.	Part No.	Description	Remark
PS301	⚠1-532-637-11	LINK, IC	
PS302	⚠1-532-679-11	LINK, IC	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q301	=>8-729-245-83	TRANSISTOR 2SC2458	
Q302	=>8-729-245-83	TRANSISTOR 2SC2458	
Q303	=>8-729-245-83	TRANSISTOR 2SC2458	
Q304	=>8-729-245-83	TRANSISTOR 2SC2458	
Q305	=>8-729-204-83	TRANSISTOR 2SA1048-GR	
Q306	=>8-729-245-83	TRANSISTOR 2SC2458	
Q307	=>8-729-245-83	TRANSISTOR 2SC2458	
Q309	=>8-729-245-83	TRANSISTOR 2SC2458	
Q310	=>8-729-245-83	TRANSISTOR 2SC2458	
Q311	=>8-729-204-83	TRANSISTOR 2SA1048-GR	
Q312	=>8-729-177-43	TRANSISTOR 2SD774	
Q313	=>8-729-204-83	TRANSISTOR 2SA1048-GR	
Q314	⚠8-729-805-13	TRANSISTOR 2SC1475-13	
Q315	=>8-729-245-83	TRANSISTOR 2SC2458	
Q316	=>8-729-245-83	TRANSISTOR 2SC2458	
Q317	=>8-729-204-83	TRANSISTOR 2SA1048-GR	
Q318	=>8-729-245-83	TRANSISTOR 2SC2458	
Q319	=>8-729-245-83	TRANSISTOR 2SC2458	
Q320	8-729-316-16	TRANSISTOR 2SC1061	
Q322	=>8-729-245-83	TRANSISTOR 2SC2458	
Q324	=>8-729-245-83	TRANSISTOR 2SC2458	
Q325	=>8-729-204-83	TRANSISTOR 2SA1048-GR	
Q326	=>8-729-245-83	TRANSISTOR 2SC2458	
Q327	=>8-729-204-83	TRANSISTOR 2SA1048-GR	
Q330	=>8-729-245-83	TRANSISTOR 2SC2458	
Q331	=>8-729-245-83	TRANSISTOR 2SC2458	
Q332	=>8-729-245-83	TRANSISTOR 2SC2458	
Q333	=>8-729-245-83	TRANSISTOR 2SC2458	
Q334	8-729-316-16	TRANSISTOR 2SC1061	
Q335	=>8-729-177-32	TRANSISTOR 2SD773	
Q336	=>8-729-245-83	TRANSISTOR 2SC2458	
Q337	=>8-729-245-83	TRANSISTOR 2SC2458	
Q338	=>8-729-245-83	TRANSISTOR 2SC2458	
Q339	=>8-729-245-83	TRANSISTOR 2SC2458	
Q340	8-729-374-02	TRANSISTOR 2SB740	
Q341	8-729-374-02	TRANSISTOR 2SB740	
Q342	=>8-729-177-43	TRANSISTOR 2SD774	
Q343	=>8-729-177-43	TRANSISTOR 2SD774	
Q344	=>8-729-245-83	TRANSISTOR 2SC2458	
Q345	=>8-729-177-43	TRANSISTOR 2SD774	
Q346	=>8-729-245-83	TRANSISTOR 2SC2458	
Q347	=>8-729-245-83	TRANSISTOR 2SC2458	
Q348	=>8-729-245-83	TRANSISTOR 2SC2458	
Q349	=>8-729-204-83	TRANSISTOR 2SA1048-GR	
Q352	=>8-729-245-83	TRANSISTOR 2SC2458	
Q354	=>8-729-245-83	TRANSISTOR 2SC2458	

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When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description				Remark
Q355	=>8-729-245-83	TRANSISTOR 2SC2458				
Q356	=>8-729-245-83	TRANSISTOR 2SC2458				
Q357	=>8-729-245-83	TRANSISTOR 2SC2458				
Q358	=>8-729-204-83	TRANSISTOR 2SA1048-GR				
Q359	=>8-729-245-83	TRANSISTOR 2SC2458				
Q360	=>8-729-245-83	TRANSISTOR 2SC2458				
Q362	=>8-729-245-83	TRANSISTOR 2SC2458				
Q363	=>8-729-245-83	TRANSISTOR 2SC2458				
Q364	=>8-729-245-83	TRANSISTOR 2SC2458				
Q365	=>8-729-245-83	TRANSISTOR 2SC2458				
Q366	=>8-729-204-83	TRANSISTOR 2SA1048-GR				
Q367	=>8-729-245-83	TRANSISTOR 2SC2458				
Q368	=>8-729-245-83	TRANSISTOR 2SC2458				
Q370	=>8-729-245-83	TRANSISTOR 2SC2458				
Q371	=>8-729-245-83	TRANSISTOR 2SC2458				
Q372	=>8-729-245-83	TRANSISTOR 2SC2458				
Q373	=>8-729-245-83	TRANSISTOR 2SC2458				
Q604	=>8-729-245-83	TRANSISTOR 2SC2458				
Q605	=>8-729-245-83	TRANSISTOR 2SC2458				
Q606	=>8-729-245-83	TRANSISTOR 2SC2458				
Q607	=>8-729-245-83	TRANSISTOR 2SC2458				
Q608	=>8-729-204-83	TRANSISTOR 2SA1048-GR				
Q609	=>8-729-245-83	TRANSISTOR 2SC2458				
Q610	=>8-729-245-83	TRANSISTOR 2SC2458				
Q611	=>8-729-245-83	TRANSISTOR 2SC2458				
Q612	=>8-729-245-83	TRANSISTOR 2SC2458				
Q613	=>8-729-245-83	TRANSISTOR 2SC2458				
Q614	=>8-729-245-83	TRANSISTOR 2SC2458				
Q615	=>8-729-177-43	TRANSISTOR 2SD774				
Q616	8-729-116-42	TRANSISTOR 2SD1164				
Q617	=>8-729-245-83	TRANSISTOR 2SC2458				
Q618	=>8-729-245-83	TRANSISTOR 2SC2458				
Q619	=>8-729-177-43	TRANSISTOR 2SD774				
Q620	8-729-116-42	TRANSISTOR 2SD1164				
Q621	=>8-729-245-83	TRANSISTOR 2SC2458				
Q622	=>8-729-245-83	TRANSISTOR 2SC2458				
Q623	=>8-729-245-83	TRANSISTOR 2SC2458				
Q624	=>8-729-245-83	TRANSISTOR 2SC2458				
Q625	=>8-729-245-83	TRANSISTOR 2SC2458				
Q626	8-729-987-42	TRANSISTOR 2SA874				
Q627	=>8-729-204-83	TRANSISTOR 2SA1048-GR				
Q628	=>8-729-204-83	TRANSISTOR 2SA1048-GR				
Q629	=>8-729-204-83	TRANSISTOR 2SA1048-GR				
Q630	=>8-729-204-83	TRANSISTOR 2SA1048-GR				
Q631	=>8-729-204-83	TRANSISTOR 2SA1048-GR				
Q632	=>8-729-204-83	TRANSISTOR 2SA1048-GR				
Q633	=>8-729-245-83	TRANSISTOR 2SC2458				
Q634	=>8-729-245-83	TRANSISTOR 2SC2458				
Q636	=>8-729-245-83	TRANSISTOR 2SC2458				
Q851	=>8-729-245-83	TRANSISTOR 2SC2458				
Q852	=>8-729-245-83	TRANSISTOR 2SC2458				
		RESISTOR				
R301	⚠ 1-212-855-00	FUSIBLE	8.2	5%	1/4W	F
R302	1-247-821-00	CARBON	390	5%	1/6W	
R303	1-206-482-00	METAL OXIDE	62	5%	2W	F

Ref.No.	Part No.	Description				Remark
R304	1-247-863-00	CARBON	22K	5%	1/6W	
R305	1-247-863-00	CARBON	22K	5%	1/6W	
R306	1-247-855-00	CARBON	10K	5%	1/6W	
R307	1-247-871-00	CARBON	47K	5%	1/6W	
R308	1-247-866-00	CARBON	30K	5%	1/6W	
R309	1-247-855-00	CARBON	10K	5%	1/6W	
R310	1-247-859-00	CARBON	15K	5%	1/6W	
R312	1-247-831-00	CARBON	1K	5%	1/6W	
R313	1-247-879-00	CARBON	100K	5%	1/6W	
R314	1-247-871-00	CARBON	47K	5%	1/6W	
R315	1-247-831-00	CARBON	1K	5%	1/6W	
R316	1-247-859-00	CARBON	15K	5%	1/6W	
R317	1-247-871-00	CARBON	47K	5%	1/6W	
R318	1-247-831-00	CARBON	1K	5%	1/6W	
R319	1-247-859-00	CARBON	15K	5%	1/6W	
R320	1-247-871-00	CARBON	47K	5%	1/6W	
R321	⚠ 1-212-850-00	FUSIBLE	5.1	5%	1/4W	F
R322	1-247-865-00	CARBON	27K	5%	1/6W	
R323	1-247-855-00	CARBON	10K	5%	1/6W	
R324	1-247-855-00	CARBON	10K	5%	1/6W	
R325	1-247-855-00	CARBON	10K	5%	1/6W	
R326	1-247-829-00	CARBON	820	5%	1/6W	
R327	1-247-839-00	CARBON	2.2K	5%	1/6W	
R328	1-247-835-00	CARBON	1.5K	5%	1/6W	
R329	1-247-863-00	CARBON	22K	5%	1/6W	
R331	1-247-849-00	CARBON	5.6K	5%	1/6W	
R332	1-247-819-00	CARBON	330	5%	1/6W	
R333	1-247-891-00	CARBON	330K	5%	1/6W	
R334	1-247-859-00	CARBON	15K	5%	1/6W	
R335	1-247-849-00	CARBON	5.6K	5%	1/6W	
R336	1-247-891-00	CARBON	330K	5%	1/6W	
R338	1-247-855-00	CARBON	10K	5%	1/6W	
R339	1-247-831-00	CARBON	1K	5%	1/6W	
R340	1-247-903-00	CARBON	1M	5%	1/6W	
R341	1-247-855-00	CARBON	10K	5%	1/6W	
R342	1-247-831-00	CARBON	1K	5%	1/6W	
R343	1-247-903-00	CARBON	1M	5%	1/6W	
R344	1-247-871-00	CARBON	47K	5%	1/6W	
R345	1-247-887-00	CARBON	220K	5%	1/6W	
R346	1-247-887-00	CARBON	220K	5%	1/6W	
R347	1-247-865-00	CARBON	27K	5%	1/6W	
R348	1-247-865-00	CARBON	27K	5%	1/6W	
R349	1-247-848-00	CARBON	5.1K	5%	1/6W	
R350	1-247-867-00	CARBON	33K	5%	1/6W	
R351	1-247-867-00	CARBON	33K	5%	1/6W	
R352	1-247-855-00	CARBON	10K	5%	1/6W	
R353	1-247-856-00	CARBON	11K	5%	1/6W	
R359	1-247-871-00	CARBON	47K	5%	1/6W	
R360	1-247-871-00	CARBON	47K	5%	1/6W	
R361	1-247-859-00	CARBON	15K	5%	1/6W	
R362	1-247-872-00	CARBON	51K	5%	1/6W	
R363	1-247-847-00	CARBON	4.7K	5%	1/6W	
R364	1-247-900-00	CARBON	750K	5%	1/6W	

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When indicating parts by reference number, please include the board name.

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Ref.No.	Part No.	Description				Remark
R365	1-247-847-00	CARBON	4.7K	5%	1/6W	
R367	1-247-871-00	CARBON	47K	5%	1/6W	
R368	1-247-833-00	CARBON	1.2K	5%	1/6W	
R369	1-247-838-00	CARBON	2K	5%	1/6W	
R370	1-247-847-00	CARBON	4.7K	5%	1/6W	
R371	⚠.1-212-360-00	METAL OXIDE	1	5%	1W	F
R372	⚠.1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R373	1-247-883-00	CARBON	150K	5%	1/6W	
R374	1-247-883-00	CARBON	150K	5%	1/6W	
R375	1-247-847-00	CARBON	4.7K	5%	1/6W	
R376	1-247-857-00	CARBON	12K	5%	1/6W	
R377	1-247-867-00	CARBON	33K	5%	1/6W	
R378	1-247-855-00	CARBON	10K	5%	1/6W	
R379	1-247-887-00	CARBON	220K	5%	1/6W	
R380	1-247-879-00	CARBON	100K	5%	1/6W	
R381	1-247-879-00	CARBON	100K	5%	1/6W	
R382	1-247-867-00	CARBON	33K	5%	1/6W	
R383	1-247-879-00	CARBON	100K	5%	1/6W	
R384	1-247-879-00	CARBON	100K	5%	1/6W	
R385	1-247-883-00	CARBON	150K	5%	1/6W	
R386	1-247-883-00	CARBON	150K	5%	1/6W	
R387	1-247-871-00	CARBON	47K	5%	1/6W	
R388	1-247-867-00	CARBON	33K	5%	1/6W	
R389	1-247-867-00	CARBON	33K	5%	1/6W	
R390	1-247-868-00	CARBON	36K	5%	1/6W	
R391	1-247-866-00	CARBON	30K	5%	1/6W	
R392	1-247-832-00	CARBON	1.1K	5%	1/6W	
R393	1-247-857-00	CARBON	12K	5%	1/6W	
R394	1-247-897-00	CARBON	560K	5%	1/6W	
R395	1-247-847-00	CARBON	4.7K	5%	1/6W	
R396	1-247-867-00	CARBON	33K	5%	1/6W	
R398	1-247-871-00	CARBON	47K	5%	1/6W	
R399	1-247-847-00	CARBON	4.7K	5%	1/6W	
R400	1-247-823-00	CARBON	470	5%	1/6W	
R401	⚠.1-212-360-00	METAL OXIDE	1	5%	1W	F
R402	⚠.1-246-981-00	CARBON	4.7	5%	1/8W	F
R403	1-247-831-00	CARBON	1K	5%	1/6W	
R404	1-247-871-00	CARBON	47K	5%	1/6W	
R405	1-247-855-00	CARBON	10K	5%	1/6W	
R406	1-247-871-00	CARBON	47K	5%	1/6W	
R407	1-247-855-00	CARBON	10K	5%	1/6W	
R408	1-247-879-00	CARBON	100K	5%	1/6W	
R410	1-247-831-00	CARBON	1K	5%	1/6W	
R413	1-247-859-00	CARBON	15K	5%	1/6W	
R414	1-247-850-00	CARBON	6.2K	5%	1/6W	
R415	1-247-863-00	CARBON	22K	5%	1/6W	
R416	1-247-871-00	CARBON	47K	5%	1/6W	
R417	1-247-855-00	CARBON	10K	5%	1/6W	
R419	1-247-871-00	CARBON	47K	5%	1/6W	
R420	⚠.1-212-366-00	METAL OXIDE	3.3	5%	1W	F
R421	1-247-871-00	CARBON	47K	5%	1/6W	
R422	1-247-871-00	CARBON	47K	5%	1/6W	
R423	1-247-855-00	CARBON	10K	5%	1/6W	
R424	1-247-871-00	CARBON	47K	5%	1/6W	
R425	1-247-855-00	CARBON	10K	5%	1/6W	
R426	1-247-863-00	CARBON	22K	5%	1/6W	
R427	1-247-863-00	CARBON	22K	5%	1/6W	
R428	1-244-865-00	CARBON	470	5%	1/2W	
R429	1-247-849-00	CARBON	5.6K	5%	1/6W	
R430	1-247-831-00	CARBON	1K	5%	1/6W	
R431	⚠.1-212-360-00	METAL OXIDE	1	5%	1W	F
R432	1-247-849-00	CARBON	5.6K	5%	1/6W	
R433	1-247-831-00	CARBON	1K	5%	1/6W	
R434	1-244-865-00	CARBON	470	5%	1/2W	
R435	1-247-863-00	CARBON	22K	5%	1/6W	
R436	1-247-863-00	CARBON	22K	5%	1/6W	
R437	1-247-871-00	CARBON	47K	5%	1/6W	
R438	1-247-855-00	CARBON	10K	5%	1/6W	
R439	1-247-903-00	CARBON	1M	5%	1/6W	
R440	1-247-855-00	CARBON	10K	5%	1/6W	
R441	1-247-903-00	CARBON	1M	5%	1/6W	
R442	1-247-871-00	CARBON	47K	5%	1/6W	
R443	1-247-855-00	CARBON	10K	5%	1/6W	
R444	1-247-871-00	CARBON	47K	5%	1/6W	
R448	1-247-873-00	CARBON	56K	5%	1/6W	
R449	1-247-897-00	CARBON	560K	5%	1/6W	
R451	1-247-871-00	CARBON	47K	5%	1/6W	
R454	1-247-857-00	CARBON	12K	5%	1/6W	
R455	1-247-845-00	CARBON	3.9K	5%	1/6W	
R456	1-247-871-00	CARBON	47K	5%	1/6W	
R457	⚠.1-246-981-00	CARBON	4.7	5%	1/8W	F
R458	1-247-825-00	CARBON	560	5%	1/6W	
R459	1-247-837-00	CARBON	1.8K	5%	1/6W	
R460	1-247-843-00	CARBON	3.3K	5%	1/6W	
R461	1-247-871-00	CARBON	47K	5%	1/6W	
R462	1-247-855-00	CARBON	10K	5%	1/6W	
R466	1-247-871-00	CARBON	47K	5%	1/6W	
R467	1-247-871-00	CARBON	47K	5%	1/6W	
R468	1-247-871-00	CARBON	47K	5%	1/6W	
R469	1-247-839-00	CARBON	2.2K	5%	1/6W	
R470	1-247-839-00	CARBON	2.2K	5%	1/6W	
R473	1-247-855-00	CARBON	10K	5%	1/6W	
R474	⚠.1-212-857-00	FUSIBLE	10	5%	1/4W	F
R475	1-247-819-00	CARBON	330	5%	1/6W	
R476	1-247-871-00	CARBON	47K	5%	1/6W	
R477	1-247-847-00	CARBON	4.7K	5%	1/6W	
R478	1-246-469-00	CARBON	680	5%	1/4W	
R479	1-247-847-00	CARBON	4.7K	5%	1/6W	
R480	1-247-795-00	CARBON	33	5%	1/6W	
R481	1-247-808-00	CARBON	110	5%	1/6W	
R482	1-247-871-00	CARBON	47K	5%	1/6W	
R483	1-247-855-00	CARBON	10K	5%	1/6W	
R484	1-247-855-00	CARBON	10K	5%	1/6W	
R485	1-247-821-00	CARBON	390	5%	1/6W	
R492	1-247-853-00	CARBON	8.2K	5%	1/6W	
R493	1-247-871-00	CARBON	47K	5%	1/6W	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description				Remark
R494	1-247-875-00	CARBON	68K	5%	1/6W	
R495	1-247-855-00	CARBON	10K	5%	1/6W	
R496	1-247-873-00	CARBON	56K	5%	1/6W	
R497	1-247-869-00	CARBON	39K	5%	1/6W	
R498	1-247-808-00	CARBON	110	5%	1/6W	
R499	1-247-831-00	CARBON	1K	5%	1/6W	
R500	1-247-871-00	CARBON	47K	5%	1/6W	
R501	1-247-855-00	CARBON	10K	5%	1/6W	
R502	1-247-856-00	CARBON	10K	5%	1/6W	
R503	1-247-831-00	CARBON	1K	5%	1/6W	
R504	1-247-871-00	CARBON	47K	5%	1/6W	
R505	1-247-855-00	CARBON	10K	5%	1/6W	
R506	1-247-863-00	CARBON	22K	5%	1/6W	
R507	1-247-871-00	CARBON	47K	5%	1/6W	
R508	1-247-871-00	CARBON	47K	5%	1/6W	
R509	1-247-871-00	CARBON	47K	5%	1/6W	
R511	1-247-863-00	CARBON	22K	5%	1/6W	
R512	1-246-467-00	CARBON	560	5%	1/4W	
R513	1-246-470-00	CARBON	750	5%	1/4W	
R514	1-247-871-00	CARBON	47K	5%	1/6W	
R516	1-247-845-00	CARBON	3.9K	5%	1/6W	
R518	1-247-863-00	CARBON	22K	5%	1/6W	
R519	1-247-855-00	CARBON	10K	5%	1/6W	
R520	1-247-871-00	CARBON	47K	5%	1/6W	
R521	1-247-879-00	CARBON	100K	5%	1/6W	
R522	1-247-857-00	CARBON	12K	5%	1/6W	
R523	1-247-855-00	CARBON	10K	5%	1/6W	
R524	1-247-842-00	CARBON	3K	5%	1/6W	
R525	1-247-855-00	CARBON	10K	5%	1/6W	
R527	1-247-863-00	CARBON	22K	5%	1/6W	
R528	1-247-871-00	CARBON	47K	5%	1/6W	
R555	1-247-880-00	CARBON	110K	5%	1/6W	
R557	1-247-871-00	CARBON	47K	5%	1/6W	
R559	1-247-865-00	CARBON	27K	5%	1/6W	
R610	1-247-817-00	CARBON	270	5%	1/6W	
R611	1-247-831-00	CARBON	1K	5%	1/6W	
R612	1-247-871-00	CARBON	47K	5%	1/6W	
R613	1-247-886-00	CARBON	200K	5%	1/6W	
R614	1-247-841-00	CARBON	2.7K	5%	1/6W	
R615	1-247-869-00	CARBON	39K	5%	1/6W	
R616	1-247-841-00	CARBON	2.7K	5%	1/6W	
R617	1-247-867-00	CARBON	33K	5%	1/6W	
R618	1-247-863-00	CARBON	22K	5%	1/6W	
R619	1-247-849-00	CARBON	5.6K	5%	1/6W	
R620	1-247-879-00	CARBON	100K	5%	1/6W	
R621	1-247-815-00	CARBON	220	5%	1/6W	
R622	1-247-875-00	CARBON	68K	5%	1/6W	
R623	1-247-831-00	CARBON	1K	5%	1/6W	
R624	1-247-801-00	CARBON	56	5%	1/6W	
R625	1-247-852-00	CARBON	7.5K	5%	1/6W	
R627	1-247-847-00	CARBON	4.7K	5%	1/6W	

Ref.No.	Part No.	Description				Remark
R628	1-247-871-00	CARBON	47K	5%	1/6W	
R629	1-247-849-00	CARBON	5.6K	5%	1/6W	
R630	1-247-871-00	CARBON	47K	5%	1/6W	
R631	1-247-895-00	CARBON	470K	5%	1/6W	
R632	1-247-875-00	CARBON	68K	5%	1/6W	
R633	1-247-831-00	CARBON	1K	5%	1/6W	
R634	1-247-879-00	CARBON	100K	5%	1/6W	
R635	1-247-871-00	CARBON	47K	5%	1/6W	
R636	1-247-871-00	CARBON	47K	5%	1/6W	
R637	1-247-827-00	CARBON	680	5%	1/6W	
R638	1-247-831-00	CARBON	1K	5%	1/6W	
R639	1-247-831-00	CARBON	1K	5%	1/6W	
R640	1-247-831-00	CARBON	1K	5%	1/6W	
R641	1-247-831-00	CARBON	1K	5%	1/6W	
R642	1-247-871-00	CARBON	47K	5%	1/6W	
R643	1-247-871-00	CARBON	47K	5%	1/6W	
R644	1-247-855-00	CARBON	10K	5%	1/6W	
R645	1-247-871-00	CARBON	47K	5%	1/6W	
R647	1-247-871-00	CARBON	47K	5%	1/6W	
R648	1-247-855-00	CARBON	10K	5%	1/6W	
R649	1-247-855-00	CARBON	10K	5%	1/6W	
R650	1-247-871-00	CARBON	47K	5%	1/6W	
R652	1-247-871-00	CARBON	47K	5%	1/6W	
R653	1-247-855-00	CARBON	10K	5%	1/6W	
R654	1-247-855-00	CARBON	10K	5%	1/6W	
R655	1-247-871-00	CARBON	47K	5%	1/6W	
R656	1-247-863-00	CARBON	22K	5%	1/6W	
R657	1-247-855-00	CARBON	10K	5%	1/6W	
R658	1-247-871-00	CARBON	47K	5%	1/6W	
R659	1-247-865-00	CARBON	27K	5%	1/6W	
R660	1-247-863-00	CARBON	22K	5%	1/6W	
R661	1-247-809-00	CARBON	120	5%	1/6W	
R662	1-247-829-00	CARBON	820	5%	1/6W	
R663	1-247-843-00	CARBON	3.3K	5%	1/6W	
R664	1-247-849-00	CARBON	5.6K	5%	1/6W	
R665	1-247-873-00	CARBON	56K	5%	1/6W	
R666	1-247-807-00	CARBON	100	5%	1/6W	
R667	1-247-855-00	CARBON	10K	5%	1/6W	
R672	1-247-831-00	CARBON	1K	5%	1/6W	
R673	1-247-831-00	CARBON	1K	5%	1/6W	
R674	1-247-831-00	CARBON	1K	5%	1/6W	
R675	1-247-831-00	CARBON	1K	5%	1/6W	
R676	1-247-831-00	CARBON	1K	5%	1/6W	
R677	1-247-831-00	CARBON	1K	5%	1/6W	
R677	1-247-831-00	CARBON	1K	5%	1/6W	
R678	1-247-855-00	CARBON	10K	5%	1/6W	
R679	1-247-871-00	CARBON	47K	5%	1/6W	
R681	1-247-831-00	CARBON	1K	5%	1/6W	
R682	1-247-831-00	CARBON	1K	5%	1/6W	
R683	1-247-871-00	CARBON	47K	5%	1/6W	
R690	1-247-855-00	CARBON	10K	5%	1/6W	
R691	1-247-855-00	CARBON	10K	5%	1/6W	
R692	1-247-855-00	CARBON	10K	5%	1/6W	

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description				Remark
R693	1-247-855-00	CARBON	10K	5%	1/6W	
R694	1-247-855-00	CARBON	10K	5%	1/6W	
R695	1-247-855-00	CARBON	10K	5%	1/6W	
R701	1-247-846-00	CARBON	4.3K	5%	1/6W	
R702	1-247-855-00	CARBON	10K	5%	1/6W	
R704	1-247-839-00	CARBON	2.2K	5%	1/6W	
R705	1-247-839-00	CARBON	2.2K	5%	1/6W	
R706	1-247-839-00	CARBON	2.2K	5%	1/6W	
R707	1-247-839-00	CARBON	2.2K	5%	1/6W	
R708	1-247-839-00	CARBON	2.2K	5%	1/6W	
R709	1-247-839-00	CARBON	2.2K	5%	1/6W	
R801	1-247-847-00	CARBON	4.7K	5%	1/6W	
R802	1-247-831-00	CARBON	1K	5%	1/6W	
R803	1-247-839-00	CARBON	2.2K	5%	1/6W	
R804	1-247-871-00	CARBON	47K	5%	1/6W	
R851	1-247-855-00	CARBON	10K	5%	1/6W	
R853	1-247-863-00	CARBON	22K	5%	1/6W	
R854	1-247-855-00	CARBON	10K	5%	1/6W	
R855	1-247-871-00	CARBON	47K	5%	1/6W	
R856	1-247-855-00	CARBON	10K	5%	1/6W	
R857	1-247-871-00	CARBON	47K	5%	1/6W	
R858	1-247-863-00	CARBON	22K	5%	1/6W	
R859	1-247-863-00	CARBON	22K	5%	1/6W	
R860	1-247-865-00	CARBON	27K	5%	1/6W	
R861	1-247-859-00	CARBON	15K	5%	1/6W	

VARIABLE RESISTOR

Ref.No.	Part No.	Description	Remark
RV301	1-228-750-00	RES, ADJ, CARBON 47K	
RV302	1-228-750-00	RES, ADJ, CARBON 47K	
RV303	1-224-254-XX	RES, ADJ, METAL GLAZE 47K	
RV304	1-228-750-00	RES, ADJ, CARBON 47K	
RV307	1-228-994-00	RES, ADJ, METAL GLAZE 10K	
RV308	1-228-994-00	RES, ADJ, METAL GLAZE 10K	
RV309	1-228-991-00	RES, ADJ, METAL GLAZE 2.2K	
RV310	1-228-991-00	RES, ADJ, METAL GLAZE 2.2K	

THERMISTOR

Ref.No.	Part No.	Description	Remark
TH302	1-800-202-XX	THERMISTOR S-10K	
TH303	1-800-200-00	THERMISTOR S-3K	
TH304	1-800-202-XX	THERMISTOR S-10K	
TH305	1-800-202-XX	THERMISTOR S-10K	

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♠:1-610-806-00 FU-15 BOARD
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Ref.No.	Part No.	Description	Remark
	♠:3-670-095-00	HOLDER, LED	
	♠:3-674-313-00	COVER, LED	
	♠:3-674-372-00	HOLDER (A), LED	

DIODE

Ref.No.	Part No.	Description	Remark
D701	8-719-812-30	DIODE TLO123	
D702	8-719-812-32	DIODE TLY123	
D703	8-719-812-32	DIODE TLY123	
D704	8-719-812-33	DIODE TLG123A	
D705	8-719-812-30	DIODE TLO123	
D706	8-719-812-33	DIODE TLG123A	

RESISTOR

Ref.No.	Part No.	Description				Remark
R701	1-247-813-00	CARBON	180	5%	1/6W	
R702	1-247-813-00	CARBON	180	5%	1/6W	
R703	1-247-811-00	CARBON	150	5%	1/6W	
R704	1-247-811-00	CARBON	150	5%	1/6W	

SWITCH

Ref.No.	Part No.	Description	Remark
S701	1-553-997-00	SWITCH, KEY BOARD	
S702	1-553-997-00	SWITCH, KEY BOARD	
S703	1-553-997-00	SWITCH, KEY BOARD	
S704	1-553-997-00	SWITCH, KEY BOARD	
S705	1-553-997-00	SWITCH, KEY BOARD	
S706	1-553-997-00	SWITCH, KEY BOARD	
S707	1-553-997-00	SWITCH, KEY BOARD	

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♠:A-6721-182-A TU-50 BOARD, COMPLETE
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Ref.No.	Part No.	Description	Remark
	1-230-134-00	PRESET UNIT, 12CH	
	♠:3-681-222-00	CASE (MAIN), SHIELD, TU	
	♠:3-681-223-00	LID, UPPER, SHIELD CASE, TU	
	♠:3-681-224-00	LID, BOTTOM, SHIELD CASE, TU	

CAPACITOR

Ref.No.	Part No.	Description				Remark
C001	1-102-530-00	CERAMIC	120PF	5%	50V	
C002	1-102-530-00	CERAMIC	120PF	5%	50V	
C003	1-102-511-00	CERAMIC	13PF	5%	50V	
C004	1-102-523-00	CERAMIC	56PF	5%	50V	
C005	1-161-030-00	CERAMIC	0.0047MF	20%	25V	
C006	1-161-030-00	CERAMIC	0.0047MF	20%	25V	
C007	1-161-030-00	CERAMIC	0.0047MF	20%	25V	
C008	1-161-030-00	CERAMIC	0.0047MF	20%	25V	
C009	1-161-030-00	CERAMIC	0.0047MF	20%	25V	
C010	1-161-030-00	CERAMIC	0.0047MF	20%	25V	
C011	1-123-318-00	ELECT	33MF	20%	16V	
C012	1-161-030-00	CERAMIC	0.0047MF	20%	25V	
C013	1-161-030-00	CERAMIC	0.0047MF	20%	25V	
C014	1-161-030-00	CERAMIC	0.0047MF	20%	25V	
C015	1-161-030-00	CERAMIC	0.0047MF	20%	25V	
C016	1-161-030-00	CERAMIC	0.0047MF	20%	25V	
C017	1-102-941-00	CERAMIC	4PF	0.5PF	50V	
C018	1-102-941-00	CERAMIC	4PF	0.5PF	50V	
C019	1-102-518-00	CERAMIC	33PF	5%	50V	
C020	1-102-529-00	CERAMIC	100PF	5%	50V	
C021	1-102-518-00	CERAMIC	33PF	5%	50V	
C022	1-102-527-00	CERAMIC	82PF	5%	50V	
C023	1-161-030-00	CERAMIC	0.0047MF	20%	25V	
C024	1-123-318-00	ELECT	33MF	20%	16V	
C025	1-123-380-00	ELECT	1MF	20%	50V	

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description			Remark
C026	1-161-030-00	CERAMIC	0.0047MF	20%	25V
C032	1-161-030-00	CERAMIC	0.0047MF	20%	25V
C033	1-123-379-00	ELECT	0.47MF	20%	50V
C034	1-101-004-00	CERAMIC	0.01MF		50V
C035	1-101-361-00	CERAMIC	150PF	5%	50V
C036	1-123-380-00	ELECT	1MF	20%	50V
C037	1-104-069-00	POLYSTYRENE	470PF	5%	50V
C038	1-102-525-00	CERAMIC	68PF	5%	50V
C039	1-161-032-00	CERAMIC	0.01MF	20%	25V
C040	1-161-032-00	CERAMIC	0.01MF	20%	25V
C041	1-161-030-00	CERAMIC	0.0047MF	20%	25V
C042	1-123-318-00	ELECT	33MF	20%	16V
C043	1-161-032-00	CERAMIC	0.01MF	20%	25V
C044	1-161-032-00	CERAMIC	0.01MF	20%	25V
C045	1-123-356-00	ELECT	10MF	20%	16V
C046	1-161-030-00	CERAMIC	0.0047MF	20%	25V
C047	1-123-318-00	ELECT	33MF	20%	16V
C048	1-123-295-00	ELECT	100MF	20%	6.3V
C049	1-123-295-00	ELECT	100MF	20%	6.3V
C050	1-123-295-00	ELECT	100MF	20%	6.3V
C051	1-123-295-00	ELECT	100MF	20%	6.3V
C052	1-161-028-00	CERAMIC	0.0022MF	20%	25V
C053	1-161-011-00	CERAMIC	0.0068MF	10%	25V
C054	1-161-028-00	CERAMIC	0.0022MF	20%	25V
C055	1-161-029-00	CERAMIC	0.0033MF	20%	25V
C056	1-161-029-00	CERAMIC	0.0033MF	20%	25V
C057	1-123-356-00	ELECT	10MF	20%	16V
C058	1-161-036-00	CERAMIC	0.047MF	20%	25V
C059	1-161-011-00	CERAMIC	0.0068MF	10%	25V
C060	1-101-340-00	CERAMIC	120PF	10%	50V
C061	1-123-380-00	ELECT	1MF	20%	50V
C062	1-161-021-00	CERAMIC	0.047MF	10%	25V
C063	1-161-021-00	CERAMIC	0.047MF	10%	25V
C064	1-123-380-00	ELECT	1MF	20%	50V
C065	1-123-380-00	ELECT	1MF	20%	50V
C066	1-123-318-00	ELECT	33MF	20%	16V
C067	1-123-356-00	ELECT	10MF	20%	16V
C068	1-123-380-00	ELECT	1MF	20%	50V
C069	1-123-333-00	ELECT	100MF	20%	16V
C070	1-123-356-00	ELECT	10MF	20%	50V
C071	1-123-381-00	ELECT	2.2MF	20%	50V
C072	1-101-004-00	CERAMIC	0.01MF		50V
C073	1-123-356-00	ELECT	10MF	20%	16V
C074	1-161-030-00	CERAMIC	0.0047MF	20%	25V
C075	1-123-318-00	ELECT	33MF	20%	16V
C076	1-123-356-00	ELECT	10MF	20%	16V
C077	1-101-004-00	CERAMIC	0.01MF		50V
C078	1-123-356-00	ELECT	10MF	20%	16V

Ref.No.	Part No.	Description			Remark
C079	1-161-061-00	CERAMIC	0.068MF	10%	50V
C080	1-123-328-00	ELECT	4.7MF	20%	25V
C081	1-123-379-00	ELECT	0.47MF	20%	50V
C082	1-123-356-00	ELECT	10MF	20%	16V
C083	1-123-356-00	ELECT	10MF	20%	16V
C084	1-161-036-00	CERAMIC	0.047MF	20%	25V
C085	1-131-415-00	ELECT(SOLID)	0.68MF	10%	16V
C086	1-123-317-00	ELECT	22MF	20%	16V
C090	1-123-316-00	ELECT	10MF	20%	16V
C091	1-123-319-00	ELECT	47MF	20%	16V
CD001	1-404-501-00	DISCRIMINATOR, CERAMIC (5.74MHz)			

FILTER

Ref.No.	Part No.	Description
CF001	1-527-840-00	FILTER, CERAMIC (5.5MHz)
CF002	1-527-839-00	FILTER, CERAMIC (5.5MHz)

CONNECTOR

Ref.No.	Part No.	Description
CN001 ●:	1-560-892-00	PIN, CONNECTOR 4P
CN002 ●:	1-560-894-00	PIN, CONNECTOR 6P
CN003 ●:	1-560-895-00	PIN, CONNECTOR 7P
CN004 ●:	1-560-894-41	PIN, CONNECTOR 6P
CN005 ●:	1-560-894-00	PIN, CONNECTOR 6P
CN006 ●:	1-560-899-00	PIN, CONNECTOR 11P
CN007 ●:	1-560-892-00	PIN, CONNECTOR 4P

TRIMMER

Ref.No.	Part No.	Description
CT001	1-404-134-00	TRAP, CERAMIC (5.5MHZ)

DIODE

Ref.No.	Part No.	Description
D002	8-719-911-19	DIODE 1SS119
D003	8-719-911-19	DIODE 1SS119
D004	8-719-911-19	DIODE 1SS119
D005	8-719-911-19	DIODE 1SS119
D006	=>8-719-101-83	DIODE RD12EL2
D007	8-719-911-19	DIODE 1SS119
D008	8-719-911-19	DIODE 1SS119
D009	8-719-911-19	DIODE 1SS119
D010	8-719-911-19	DIODE 1SS119
D011	8-719-901-33	DIODE 1SS133
D012	8-719-901-33	DIODE 1SS133
D013	8-719-901-33	DIODE 1SS133
D014	8-719-901-33	DIODE 1SS133
D015	8-719-901-33	DIODE 1SS133
D016	8-719-901-33	DIODE 1SS133
D017	8-719-901-33	DIODE 1SS133
D018	8-719-901-33	DIODE 1SS133
D019	8-719-901-33	DIODE 1SS133
D020	8-719-901-33	DIODE 1SS133

When indicating parts by reference number, please include the board name.

TU-50

Ref.No.	Part No.	Description	Remark
D021	8-719-901-33	DIODE 1SS133	
D022	8-719-901-33	DIODE 1SS133	
D023	8-719-911-19	DIODE 1SS119	
D024	8-719-911-19	DIODE 1SS119	
D025	8-719-911-19	DIODE 1SS119	
D026	8-719-911-19	DIODE 1SS119	
D027	8-719-911-19	DIODE 1SS119	
D028	8-719-911-19	DIODE 1SS119	
D029	8-719-911-19	DIODE 1SS119	
D030	8-719-911-19	DIODE 1SS119	
D031	8-719-911-19	DIODE 1SS119	
D032	8-719-911-19	DIODE 1SS119	
D033	8-719-911-19	DIODE 1SS119	
D034	8-719-911-19	DIODE 1SS119	
D035	8-719-901-33	DIODE 1SS133	
D036	8-719-901-33	DIODE 1SS133	
D037	8-719-901-33	DIODE 1SS133	
D038	8-719-901-33	DIODE 1SS133	
D039	8-719-901-33	DIODE 1SS133	
D040	8-719-901-33	DIODE 1SS133	
D041	8-719-901-33	DIODE 1SS133	
D042	8-719-901-33	DIODE 1SS133	
D043	8-719-901-33	DIODE 1SS133	
D044	8-719-901-33	DIODE 1SS133	
D045	8-719-901-33	DIODE 1SS133	
D046	8-719-901-33	DIODE 1SS133	
D049	8-719-911-19	DIODE 1SS119	
D050	8-719-911-19	DIODE 1SS119	

IC

Ref.No.	Part No.	Description	Remark
IC001	8-759-276-07	IC TA7607AP	
IC002	=>8-759-909-54	IC TDA2546A	
IC003	8-759-007-54	IC TDA4940	
IC004	8-759-007-55	IC TDA4944	
IC005	8-759-157-40	IC UPC574J	
IC006	8-759-600-44	IC M54836AP	

COIL

Ref.No.	Part No.	Description	Remark
L001	1-408-593-00	MICRO INDUCTOR 1.5UH	
L002	1-408-600-00	MICRO INDUCTOR 5.6UH	
L003	1-408-600-00	MICRO INDUCTOR 5.6UH	
L004	1-408-603-00	MICRO INDUCTOR 10UH	
L006	1-408-597-00	MICRO INDUCTOR 3.3UH	
L007	1-408-600-00	MICRO INDUCTOR 5.6UH	
L008	1-407-494-00	MICRO INDUCTOR 1.5MMH	
L009	1-408-615-00	MICRO INDUCTOR 100UH	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q001	8-765-300-00	TRANSISTOR 2SC2009	
Q002	8-769-200-20	TRANSISTOR 2SK107-2	
Q003	=>8-729-245-83	TRANSISTOR 2SC2458	
Q006	=>8-729-245-83	TRANSISTOR 2SC2458	
Q007	=>8-729-245-83	TRANSISTOR 2SC2458	
Q008	=>8-729-245-83	TRANSISTOR 2SC2458	
Q009	=>8-729-245-83	TRANSISTOR 2SC2458	
Q010	=>8-729-245-83	TRANSISTOR 2SC2458	
Q011	=>8-729-204-83	TRANSISTOR 2SA1048GR	
Q012	=>8-729-204-83	TRANSISTOR 2SA1048GR	
Q013	=>8-729-245-83	TRANSISTOR 2SC2458	
Q014	8-729-988-12	TRANSISTOR 2SA881	
Q015	=>8-729-204-83	TRANSISTOR 2SA1048GR	
Q016	=>8-729-204-83	TRANSISTOR 2SA1048GR	
Q017	=>8-729-204-83	TRANSISTOR 2SA1048GR	
Q018	=>8-729-245-83	TRANSISTOR 2SC2458	
Q019	8-729-115-30	TRANSISTOR 2SK105A-30	
Q020	=>8-729-245-83	TRANSISTOR 2SC2458	
Q021	=>8-729-245-83	TRANSISTOR 2SC2458	
Q022	=>8-729-204-83	TRANSISTOR 2SA1048GR	
Q023	=>8-729-245-83	TRANSISTOR 2SC2458	
Q024	=>8-729-245-83	TRANSISTOR 2SC2458	
Q025	=>8-729-204-83	TRANSISTOR 2SA1048-GR	
Q026	8-729-900-89	TRANSISTOR DTC144ES	
Q027	8-729-900-89	TRANSISTOR DTC144ES	

RESISTOR

Ref.No.	Part No.	Description				Remark
R001	1-247-847-00	CARBON	4.7K	5%	1/6W	
R002	1-247-845-00	CARBON	3.9K	5%	1/6W	
R003	1-247-831-00	CARBON	1K	5%	1/6W	
R004	1-247-815-00	CARBON	220	5%	1/6W	
R005	1-246-457-00	CARBON	220	5%	1/4W	
R006	1-247-837-00	CARBON	1.8K	5%	1/6W	
R007	1-247-841-00	CARBON	2.7K	5%	1/6W	
R008	1-247-867-00	CARBON	33K	5%	1/6W	
R009	1-247-835-00	CARBON	1.5K	5%	1/6W	
R010	1-247-877-00	CARBON	82K	5%	1/6W	
R011	1-247-863-00	CARBON	22K	5%	1/6W	
R012	1-247-895-00	CARBON	470K	5%	1/6W	
R013	1-247-901-00	CARBON	820K	5%	1/6W	
R014	1-247-831-00	CARBON	1K	5%	1/6W	
R015	1-247-813-00	CARBON	180	5%	1/6W	
R016	1-247-807-00	CARBON	100	5%	1/6W	
R017	1-247-813-00	CARBON	180	5%	1/6W	
R018	1-247-809-00	CARBON	120	5%	1/6W	
R027	1-247-831-00	CARBON	1K	5%	1/6W	
R028	1-247-829-00	CARBON	820	5%	1/6W	
R029	1-247-829-00	CARBON	820	5%	1/6W	
R030	1-247-829-00	CARBON	820	5%	1/6W	
R031	1-247-855-00	CARBON	10K	5%	1/6W	
R032	1-247-863-00	CARBON	22K	5%	1/6W	
R033	1-247-849-00	CARBON	5.6K	5%	1/6W	
R034	1-247-875-00	CARBON	68K	5%	1/6W	
R035	1-247-875-00	CARBON	68K	5%	1/6W	
R036	1-247-875-00	CARBON	68K	5%	1/6W	
R037	1-247-875-00	CARBON	68K	5%	1/6W	
R038	1-247-877-00	CARBON	82K	5%	1/6W	
R039	1-247-869-00	CARBON	39K	5%	1/6W	

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description				Remark
R040	1-247-875-00	CARBON	68K	5%	1/6W	
R041	1-247-875-00	CARBON	68K	5%	1/6W	
R042	1-247-831-00	CARBON	1K	5%	1/6W	
R043	1-247-821-00	CARBON	390	5%	1/6W	
R044	1-247-819-00	CARBON	330	5%	1/6W	
R045	1-247-831-00	CARBON	1K	5%	1/6W	
R046	1-247-863-00	CARBON	22K	5%	1/6W	
R047	1-247-871-00	CARBON	47K	5%	1/6W	
R048	1-247-849-00	CARBON	5.6K	5%	1/6W	
R049	1-247-855-00	CARBON	10K	5%	1/6W	
R050	1-247-855-00	CARBON	10K	5%	1/6W	
R051	1-247-855-00	CARBON	10K	5%	1/6W	
R052	1-247-859-00	CARBON	15K	5%	1/6W	
R053	1-247-859-00	CARBON	15K	5%	1/6W	
R054	1-246-475-00	CARBON	1.2K	5%	1/4W	
R055	1-246-475-00	CARBON	1.2K	5%	1/4W	
R056	1-247-831-00	CARBON	1K	5%	1/6W	
R057	1-247-831-00	CARBON	1K	5%	1/6W	
R058	1-247-872-00	CARBON	51K	5%	1/6W	
R059	1-247-872-00	CARBON	51K	5%	1/6W	
R060	1-247-857-00	CARBON	12K	5%	1/6W	
R061	1-247-857-00	CARBON	12K	5%	1/6W	
R062	1-247-831-00	CARBON	1K	5%	1/6W	
R063	1-247-863-00	CARBON	22K	5%	1/6W	
R066	⚠1-212-944-00	FUSIBLE	2.7	5%	1/2W	F
R067	1-247-841-00	CARBON	2.7K	5%	1/6W	
R068	⚠1-206-670-00	METAL OXIDE	1.8K	5%	2W	F
R069	1-247-865-00	CARBON	27K	5%	1/6W	
R070	1-247-879-00	CARBON	100K	5%	1/6W	
R071	1-247-871-00	CARBON	47K	5%	1/6W	
R072	1-247-871-00	CARBON	47K	5%	1/6W	
R073	1-247-847-00	CARBON	4.7K	5%	1/6W	
R074	1-247-831-00	CARBON	1K	5%	1/6W	
R075	1-247-859-00	CARBON	15K	5%	1/6W	
R076	1-247-855-00	CARBON	10K	5%	1/6W	
R077	1-247-859-00	CARBON	15K	5%	1/6W	
R078	1-247-855-00	CARBON	10K	5%	1/6W	
R079	1-247-859-00	CARBON	15K	5%	1/6W	
R080	1-247-855-00	CARBON	10K	5%	1/6W	
R081	1-247-831-00	CARBON	1K	5%	1/6W	
R082	1-247-855-00	CARBON	10K	5%	1/6W	
R083	1-247-900-00	CARBON	750K	5%	1/6W	
R084	1-247-895-00	CARBON	470K	5%	1/6W	
R085	1-247-883-00	CARBON	150K	5%	1/6W	
R086	1-247-867-00	CARBON	33K	5%	1/6W	
R087	1-247-895-00	CARBON	470K	5%	1/6W	
R088	1-247-871-00	CARBON	47K	5%	1/6W	
R089	1-247-871-00	CARBON	47K	5%	1/6W	
R090	1-247-859-00	CARBON	15K	5%	1/6W	
R091	1-247-855-00	CARBON	10K	5%	1/6W	
R092	1-247-863-00	CARBON	22K	5%	1/6W	
R093	1-247-863-00	CARBON	22K	5%	1/6W	
R094	1-247-863-00	CARBON	22K	5%	1/6W	
R095	1-247-855-00	CARBON	10K	5%	1/6W	
R096	1-247-849-00	CARBON	5.6K	5%	1/6W	
R097	1-247-855-00	CARBON	10K	5%	1/6W	
R098	1-247-831-00	CARBON	1K	5%	1/6W	
R099	1-247-843-00	CARBON	3.3K	5%	1/6W	
R100	1-247-863-00	CARBON	22K	5%	1/6W	
R101	1-247-863-00	CARBON	22K	5%	1/6W	
R102	1-247-863-00	CARBON	22K	5%	1/6W	
R103	1-247-863-00	CARBON	22K	5%	1/6W	
R104	1-247-863-00	CARBON	22K	5%	1/6W	
R105	1-247-855-00	CARBON	10K	5%	1/6W	
R106	1-247-863-00	CARBON	22K	5%	1/6W	
R107	1-247-863-00	CARBON	22K	5%	1/6W	
R108	1-247-863-00	CARBON	22K	5%	1/6W	
R109	1-247-881-00	CARBON	120K	5%	1/6W	
R110	1-247-859-00	CARBON	15K	5%	1/6W	
R111	1-247-807-00	CARBON	100	5%	1/6W	
R112	1-247-859-00	CARBON	15K	5%	1/6W	
R113	1-247-871-00	CARBON	47K	5%	1/6W	
R120	1-247-871-00	CARBON	47K	5%	1/6W	

VARIABLE RESISTOR

RV001	1-228-747-00	RES, ADJ, CARBON 4.7K
RV002	1-228-753-00	RES, ADJ, CARBON 470K
RV003	1-228-750-00	RES, ADJ, CARBON 47K

SWITCH

S001	1-516-226-00	SLIDE SWITCH
S002	1-554-373-00	SWITCH, LEVER

FILTER

SWF001	1-404-438-00	FILTER, SAWF

TRANSFORMER

T001	1-404-476-00	COIL, IF
T002	1-404-476-00	COIL, IF
T003	1-404-427-00	VIFT
T004	1-404-427-00	VIFT
T005	1-404-477-00	COIL, IF
T006	1-404-476-00	COIL, IF

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●:1-611-042-00 MT-7 BOARD
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●:1-609-227-00 CS-3 BOARD
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CONNECTOR

CN301	●:1-564-029-00	PIN, CONNECTOR 4P

SWITCH

S301	1-554-241-00	SWITCH, LEVER

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description	Remark
	♠:1-609-228-00	CS-4 BOARD **********	

SWITCH

Ref.No.	Part No.	Description	Remark
S302	1-554-241-00	SWITCH, LEVER	

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Ref.No.	Part No.	Description	Remark
	♠:1-605-071-00	LM-8 BOARD **********	

CAPACITOR

Ref.No.	Part No.	Description	Remark
C101	1-161-057-00	CERAMIC 0.033MF 10% 50V	
C102	1-161-057-00	CERAMIC 0.033MF 10% 50V	

COIL

Ref.No.	Part No.	Description	Remark
L101	1-408-120-00	MICRO INDUCTOR 18UH	
L102	1-408-120-00	MICRO INDUCTOR 18UH	

RESISTOR

Ref.No.	Part No.	Description	Remark
R101	1-206-479-00	METAL OXIDE 47 5% 2W	F

****

Ref.No.	Part No.	Description	Remark
	♠:1-610-401-00	RD-6 BOARD **********	
	♠:3-681-157-00	HOLDER, RD	

DIODE

Ref.No.	Part No.	Description	Remark
D001	8-719-921-03	DIODE GP-2S02A	

****

Ref.No.	Part No.	Description	Remark
	♠:1-610-402-00	RD-7 BOARD **********	

DIODE

Ref.No.	Part No.	Description	Remark
D001	8-719-921-03	DIODE GP-2S02A	

****

Ref.No.	Part No.	Description	Remark
	♠:1-606-794-00	N BOARD *******	

CAPACITOR

Ref.No.	Part No.	Description	Remark
C001	1-123-617-00	ELECT 10MF 20% 16V	
C002	1-123-617-00	ELECT 10MF 20% 16V	
C003	1-123-617-00	ELECT 10MF 20% 16V	
C004	1-161-019-00	CERAMIC 0.033MF 10% 25V	
C005	1-108-567-00	MYLAR 0.0033MF 5% 50V	
C006	1-123-821-00	ELECT 47MF 20% 16V	

COMPOSITION CIRCUIT BLOCK

Ref.No.	Part No.	Description	Remark
CP001	1-232-234-00	COMPOSITION CIRCUIT BLOCK	

DIODE

Ref.No.	Part No.	Description	Remark
D001	8-719-110-32	DIODE PH302B	

IC

Ref.No.	Part No.	Description	Remark
IC001	8-759-113-73	IC UPC1373H	

COIL

Ref.No.	Part No.	Description	Remark
L001	1-404-310-00	COIL	

****

Ref.No.	Part No.	Description	Remark
	♠:1-610-804-00	TM-40 BOARD ***********	
	♠:8-674-372-00	HOLDER (A), LED (D212)	
	♠:3-682-424-00	HOLDER, TUBE, INDICATION	
	7-685-133-11	SCREW +P 2.6X6 TYPE1	

DIODE

Ref.No.	Part No.	Description	Remark
D102	8-719-812-31	DIODE TLR123	
D103	8-719-812-31	DIODE TLR123	
D212	8-719-812-31	DIODE TLR123	
D801	8-719-812-31	DIODE TLR123	
D802	8-719-812-31	DIODE TLR123	

INDICATOR TUBE

Ref.No.	Part No.	Description	Remark
FL101	1-519-303-00	INDICATOR TUBE, FLUORESCENT	

RESISTOR

Ref.No.	Part No.	Description	Remark
R101	1-247-819-00	CARBON 330 5% 1/6W	
R201	1-247-815-00	CARBON 220 5% 1/6W	

VARIABLE RESISTOR

Ref.No.	Part No.	Description	Remark
RV601	1-230-122-00	RES, VAR, CARBON 100K	

SWITCH

Ref.No.	Part No.	Description	Remark
S101	1-553-997-00	SWITCH, KEY BOARD	
S102	1-553-997-00	SWITCH, KEY BOARD	
S103	1-553-997-00	SWITCH, KEY BOARD	
S203	1-553-997-00	SWITCH, KEY BOARD	
S204	1-553-997-00	SWITCH, KEY BOARD	
S205	1-553-997-00	SWITCH, KEY BOARD	
S206	1-553-997-00	SWITCH, KEY BOARD	
S207	1-553-997-00	SWITCH, KEY BOARD	
S208	1-553-997-00	SWITCH, KEY BOARD	
S209	1-553-997-00	SWITCH, KEY BOARD	
S210	1-553-997-00	SWITCH, KEY BOARD	
S211	1-553-997-00	SWITCH, KEY BOARD	
S501	1-553-997-00	SWITCH, KEY BOARD	
S502	1-553-997-00	SWITCH, KEY BOARD	
S503	1-553-997-00	SWITCH, KEY BOARD	
S504	1-553-997-00	SWITCH, KEY BOARD	
S505	1-553-997-00	SWITCH, KEY BOARD	
S506	1-553-997-00	SWITCH, KEY BOARD	
S507	1-553-997-00	SWITCH, KEY BOARD	
S508	1-553-997-00	SWITCH, KEY BOARD	
S509	1-553-997-00	SWITCH, KEY BOARD	
S510	1-553-997-00	SWITCH, KEY BOARD	
S511	1-553-997-00	SWITCH, KEY BOARD	
S512	1-553-997-00	SWITCH, KEY BOARD	
S611	1-554-377-00	SWITCH, SLIDE	
S612	1-554-377-00	SWITCH, SLIDE	
S801	1-554-375-00	SWITCH, PUSH	

When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description				Remark
	•:1-610-805-00	TM-41 BOARD ***********				
	•:3-674-372-00	HOLDER (A), LED (D005)				

CAPACITOR

Ref.No.	Part No.	Description				Remark
C001	1-123-354-00	ELECT	3.3MF	20%	50V	
C002	1-125-299-00	DOUBLE LAYERS	47000MF			
C004	1-102-959-00	CERAMIC	22PF	5%	50V	
C005	1-123-318-00	ELECT	33MF	20%	16V	
C006	1-123-342-00	ELECT	22MF	20%	35V	
C007	1-161-024-00	CERAMIC	0.082MF	10%	25V	
C008	1-161-025-00	CERAMIC	0.1MF	10%	25V	
C009	1-161-061-00	CERAMIC	0.068MF	10%	50V	
C011	1-161-025-00	CERAMIC	0.1MF	10%	25V	

CONNECTOR

Ref.No.	Part No.	Description	Remark
CN002	•:1-560-891-00	PIN, CONNECTOR 3P	
CN004	•:1-560-895-00	PIN, CONNECTOR 7P	
CN007	•:1-564-027-00	PIN, CONNECTOR 2P	

DIODE

Ref.No.	Part No.	Description	Remark
D001	8-719-911-19	DIODE 1SS119	
D002	8-719-191-07	DIODE RD9.1E-B	
D005	8-719-812-31	DIODE TLR123	
D006	8-719-911-19	DIODE 1SS119	
D007	8-719-911-19	DIODE 1SS119	
D008	8-719-911-19	DIODE 1SS119	
D009	8-719-911-19	DIODE 1SS119	

IC

Ref.No.	Part No.	Description	Remark
IC001	8-759-101-63	IC UPD7519G-033	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q005	=>8-729-245-83	TRANSISTOR 2SC2458	
Q006	=>8-729-245-83	TRANSISTOR 2SC2458	
Q007	=>8-729-204-83	TRANSISTOR 2SA1048-GR	

RESISTOR

Ref.No.	Part No.	Description				Remark
R001	1-247-875-00	CARBON	68K	5%	1/6W	
R004	1-247-903-00	CARBON	1M	5%	1/6W	
R006	1-247-831-00	CARBON	1K	5%	1/6W	
R007	1-247-879-00	CARBON	100K	5%	1/6W	
R008	1-247-863-00	CARBON	22K	5%	1/6W	
R009	1-247-867-00	CARBON	33K	5%	1/6W	
R010	1-247-867-00	CARBON	33K	5%	1/6W	
R011	1-247-872-00	CARBON	51K	5%	1/6W	
R012	1-247-843-00	CARBON	3.3K	5%	1/6W	
R013	1-247-879-00	CARBON	100K	5%	1/6W	
R014	1-247-879-00	CARBON	100K	5%	1/6W	
R015	1-247-879-00	CARBON	100K	5%	1/6W	
R016	1-247-879-00	CARBON	100K	5%	1/6W	
R017	1-247-868-00	CARBON	36K	5%	1/6W	
R018	1-247-886-00	CARBON	200K	5%	1/6W	
R019	1-247-874-00	CARBON	62K	5%	1/6W	
R020	1-247-869-00	CARBON	39K	5%	1/6W	
R021	1-247-879-00	CARBON	100K	5%	1/6W	
R022	1-247-855-00	CARBON	10K	5%	1/6W	
R023	1-247-855-00	CARBON	10K	5%	1/6W	
R024	1-247-855-00	CARBON	10K	5%	1/6W	
R025	1-247-855-00	CARBON	10K	5%	1/6W	
R026	1-247-855-00	CARBON	10K	5%	1/6W	
R027	1-247-855-00	CARBON	10K	5%	1/6W	
R028	1-247-855-00	CARBON	10K	5%	1/6W	
R029	1-247-855-00	CARBON	10K	5%	1/6W	
R030	1-247-855-00	CARBON	10K	5%	1/6W	
R032	1-247-855-00	CARBON	10K	5%	1/6W	

TRIMMER

Ref.No.	Part No.	Description	Remark
TC001	1-141-022-11	CAP, TRIMMER, CERAMIC	

POST PIN

Ref.No.	Part No.	Description	Remark
TP001	•:3-846-049-11	PIN, LEAD	
TP002	•:3-846-049-11	PIN, LEAD	

CRYSTAL

Ref.No.	Part No.	Description	Remark
X001	1-527-647-00	OSCILLATOR, CRYSTAL	

****

Ref.No.	Part No.	Description	Remark
	•:1-610-409-00	PS-23 BOARD ***********	
	1-533-162-00	HOLDER, FUSE	
	⚠1-535-443-11	PIN, TERMINAL (AC CORD)	

CAPACITOR

Ref.No.	Part No.	Description				Remark
C401	⚠1-130-710-00	FILM	0.1MF	20%	250V	
C406	1-125-298-00	ELECT(BLOCK)	10000MF	20%	25V	
C414	1-123-332-00	ELECT	47MF	20%	16V	
C415	1-123-332-00	ELECT	47MF	20%	16V	

CONNECTOR

Ref.No.	Part No.	Description	Remark
CN403	•:1-560-891-00	PIN, CONNECTOR 3P	
CN405	•:1-560-890-00	PIN, CONNECTOR 2P	
CN407	•:1-560-890-00	PIN, CONNECTOR 2P	

DIODE

Ref.No.	Part No.	Description	Remark
D401	8-719-505-20	DIODE S5VB20	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

PS-23 PS-22

FUSE

Ref.No.	Part No.	Description	Remark
F401	⚠.1-532-203-11	FUSE, TIME-LAG T2A 250V	
F402	⚠.1-532-237-11	FUSE, TIME-LAG T3.15A 250V	

IC

Ref.No.	Part No.	Description	Remark
IC401	8-749-912-29	IC STR1229	

RESISTOR

Ref.No.	Part No.	Description	Remark
R411	1-247-823-00	CARBON 470 5% 1/6W	

* * *

A-6728-871-A PS-22 BOARD, COMPLETE

Ref.No.	Part No.	Description	Remark
	1-533-162-00	HOLDER, FUSE	
	7-685-646-01	SCREW +BVTT 3X8 (S)	

CAPACITOR

Ref.No.	Part No.	Description	Remark
C308	1-123-325-00	ELECT 2200MF 20% 16V	
C309	1-123-377-00	ELECT 470MF 20% 63V	
C311	1-123-375-00	ELECT 220MF 20% 63V	
C316	1-123-330-00	ELECT 22MF 20% 16V	
C319	1-123-330-00	ELECT 22MF 20% 16V	
C320	1-123-330-00	ELECT 22MF 20% 16V	

CONNECTOR

Ref.No.	Part No.	Description	Remark
CN301	♦:1-560-893-00	PIN, CONNECTOR 5P	
CN302	♦:1-560-892-00	PIN, CONNECTOR 4P	
CN304	♦:1-560-895-00	PIN, CONNECTOR 7P	
CN306	♦:1-560-891-00	PIN, CONNECTOR 3P	
CN308	♦:1-560-894-00	PIN, CONNECTOR 6P	

DIODE

Ref.No.	Part No.	Description	Remark
D302	=>8-719-511-20	DIODE S1VB20	
D313	8-719-200-02	DIODE 10E-2	
D315	8-719-200-02	DIODE 10E-2	
D317	8-719-100-41	DIODE RD6.8EB2	
D318	8-719-100-44	DIODE RD7.5EB2	

FUSE

Ref.No.	Part No.	Description	Remark
F304	⚠.1-532-279-11	FUSE, TIME-LAG T500MMA 250V	
F306	⚠.1-532-279-11	FUSE, TIME-LAG T500MMA 250V	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q301	=>8-729-316-16	TRANSISTOR 2SC1061	
Q302	8-729-178-54	TRANSISTOR 2SC2785	
Q303	8-729-178-54	TRANSISTOR 2SC2785	
Q306	8-729-178-54	TRANSISTOR 2SC2785	
Q307	=>8-729-316-16	TRANSISTOR 2SC1061	
Q308	=>8-729-316-16	TRANSISTOR 2SC1061	
Q309	8-729-178-54	TRANSISTOR 2SC2785	

RESISTOR

Ref.No.	Part No.	Description	Remark
R301	1-247-819-00	CARBON 330 5% 1/6W	
R302	1-247-842-00	CARBON 3K 5% 1/6W	
R303	1-247-862-00	CARBON 20K 5% 1/6W	
R304	1-247-831-00	CARBON 1K 5% 1/6W	
R305	1-247-847-00	CARBON 4.7K 5% 1/6W	
R306	1-247-857-00	CARBON 12K 5% 1/6W	
R308	⚠.1-213-144-00	METAL OXIDE 1.2K 5% 1W	F
R310	1-247-855-00	CARBON 10K 5% 1/6W	
R313	1-244-885-00	CARBON 3.3K 5% 1/2W	
R314	1-247-865-00	CARBON 27K 5% 1/6W	
R315	1-247-847-00	CARBON 4.7K 5% 1/6W	
R316	1-247-852-00	CARBON 7.5K 5% 1/6W	

* * *

MISCELLANEOUS

Ref.No.	Part No.	Description	Remark
	A-6761-064-A	ACE ASSY (AUDIO, AUDIO ERASE, CTL)	
	⚠.1-463-350-12	TUNER (BT-881)	
	⚠.1-464-270-12	BOOSTER, RF MODULATOR(RFU-808)	
	⚠.1-534-817-12	POWER CORD	
	1-541-163-00	MOTOR (LOADING MOTOR)	
	♦:1-556-934-00	CABLE, PIN	
	8-825-508-10	HEAD, FE (FULL ERASE)	
L901	1-464-249-21	SENSOR, S COIL	
L902	1-464-250-00	SENSOR, T COIL	
M902	8-838-048-00	MOTOR, DC (BHF-1908A) (CAPSTAN MOTOR)	
M903	♦:A-4910-021-A	R STATOR BOARD, COMPLETE (REEL MOTOR)	
M904	A-6737-118-A	MOTOR ASSY, L (LOADING MOTOR)	
PM901	⚠.1-454-348-31	SOLENOID, BRAKE PLUNGER	
PM902	⚠.1-454-349-21	SOLENOID, PLUNGER (PINCH)	
S901	1-554-374-00	SWITCH, LEVER (REC PROOF)	
S902	1-554-374-00	SWITCH, LEVER (CASSETTE DOWN)	
S903	1-553-539-00	SWITCH, MICRO (LOADING END)	
S904	1-553-718-00	SWITCH, MICRO (UNLOADING END)	
T901	⚠.1-447-614-11	TRANSFORMER, POWER	

* * *

ACCESSORIES AND PACKING MATERIALS

Ref.No.	Part No.	Description	Remark
	A-6765-199-A	COMMANDER ASSY	
	1-551-513-00	CABLE, COAXAL ASSY	
	1-556-893-00	CORD ASSY, COAXIAL	
	3-656-301-00	SCREWDRIVER, CONTROL	
	3-681-190-00	SHEET (LARGE), PROTECTION	
	3-682-436-00	INDIVIDUAL CARTON	
	3-682-431-00	CUSHION (UPPER)	
	3-682-432-00	CUSHION (LOWER)	
	3-773-584-61	MANUAL, INSTRUCTION	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

RMT-216

SERVICE MANUAL

PICTURE SEARCH
SONY
REMOTE COMMANDER RMT-216

SPECIFICATIONS

Remote control system	Infrared control
Power requirements	3V dc, 2 IEC designation R6 batteries (size AA)
Dimensions	Approx. 65 × 20 × 153 mm (w/h/d) ($2^5/_8$ × $^{13}/_{16}$ × $6^1/_8$ inches) incl. projecting parts and controls
Weight	Approx. 140 g (5 oz) incl. batteries

REMOTE COMMANDER

SONY®

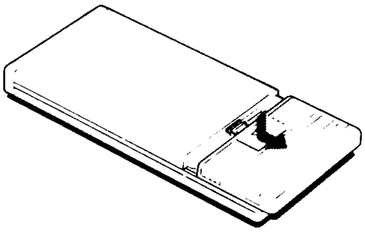
ACC

1. REMOTE CONTROL OPERATION

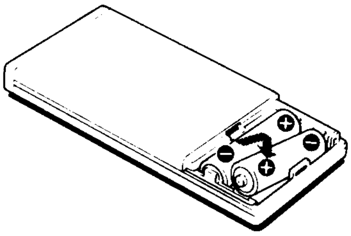
You can control almost all the functions of this video cassette recorder from your armchair using the supplied Remote Commander.

BATTERY INSERTION

1 Open the lid.



2 Insert two IEC designation R6 batteries (size AA) with correct polarity.



3 Close the lid firmly.

Notes on the Remote Commander

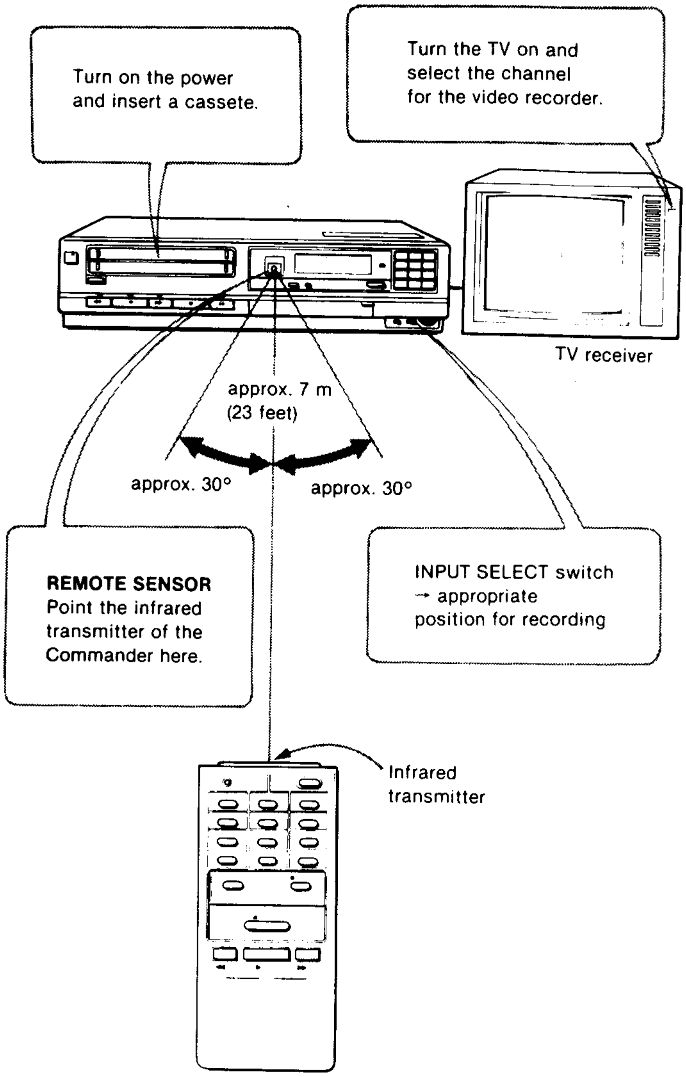
- Avoid dropping foreign objects into the cabinet, particularly when replacing batteries.
- Keep the Commander away from extremely hot or humid places.
- Avoid mechanical shock to the unit.
- This Commander may be used only with this video cassette recorder.

Battery life

In normal operation, batteries will last for about six months. If the range of the Remote Commander becomes noticeably short, replace the batteries with new ones. When the batteries are exhausted, the remote function indicator will not light when the buttons on the Commander are pressed.

If the Commander is not to be used for a long period of time, remove the batteries to avoid possible damage from battery leakage.

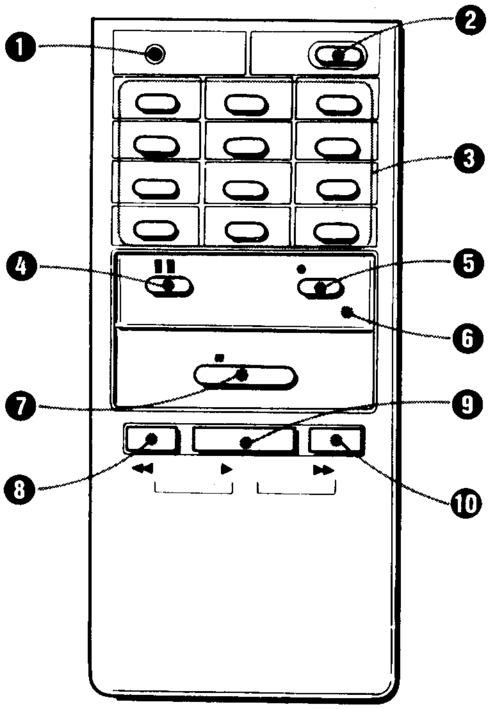
PREPARATION


Turn on the power and insert a cassete.
Turn the TV on and select the channel for the video recorder.
TV receiver
approx. 7 m (23 feet)
approx. 30°
approx. 30°
REMOTE SENSOR Point the infrared transmitter of the Commander here.
INPUT SELECT switch → appropriate position for recording
Infrared transmitter

Notes

- There should be no obstacles between the Commander and the REMOTE SENSOR of the recorder.
- The shorter the distance between the Commander and the recorder, the wider the angle within which the recorder can be controlled.

FUNCTION OF THE BUTTONS



❶ Remote function indicator
Lights up when any of the buttons on the Commander are pressed.

❷ ON button
Press to turn the power on. To turn it off, press again.

❸ Programme select buttons
Press to select a programme to be viewed or to be recorded.

❹ ❚❚ PAUSE button
Press to stop the tape momentarily. To resume the previous mode, press it again.

❺ ● REC button
Press to start recording.

❻ Sliding cover
During playback, slide this cover over the record button to prevent accidental recording. During recording, slide this cover down to prevent accidental interruption of recording.

❼ ■ STOP button
Press to stop the tape.

❽ ◀◀ REW button
Press to rewind the tape. Used also for reverse picture search operation during playback and for skip scan operation during rewinding.

❾ ▶ PLAY button
Press to play the tape back.

❿ ▶▶ FF button
Press to advance the tape rapidly. Used also for forward picture search operation during playback and for skip scan operation during fast forward mode.

OPERATION

Recording

1 Select the channel to be recorded with the programme select button.
2 Press the ● REC button. The recording will begin.
To stop recording, press the ■ STOP button.

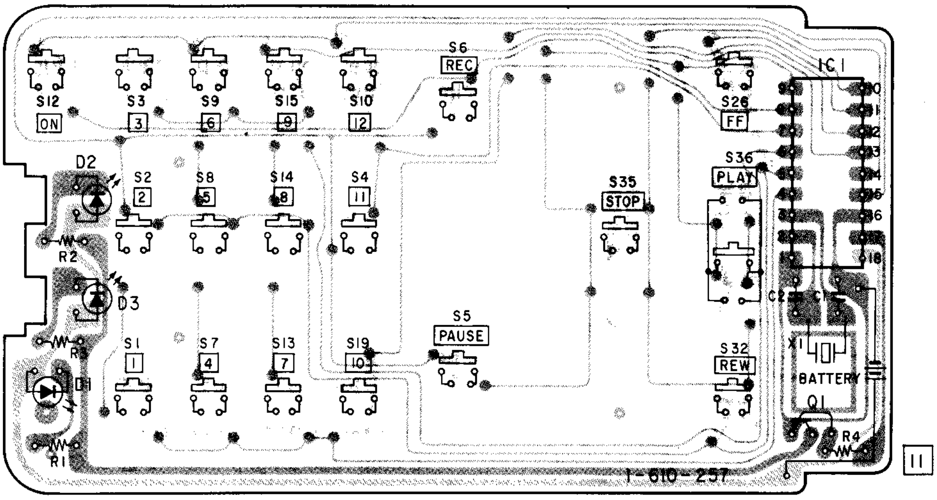
Playback

Press the ▶ PLAY button. Playback will begin.
To stop playback, press the ■ STOP button.

A B C D E F G

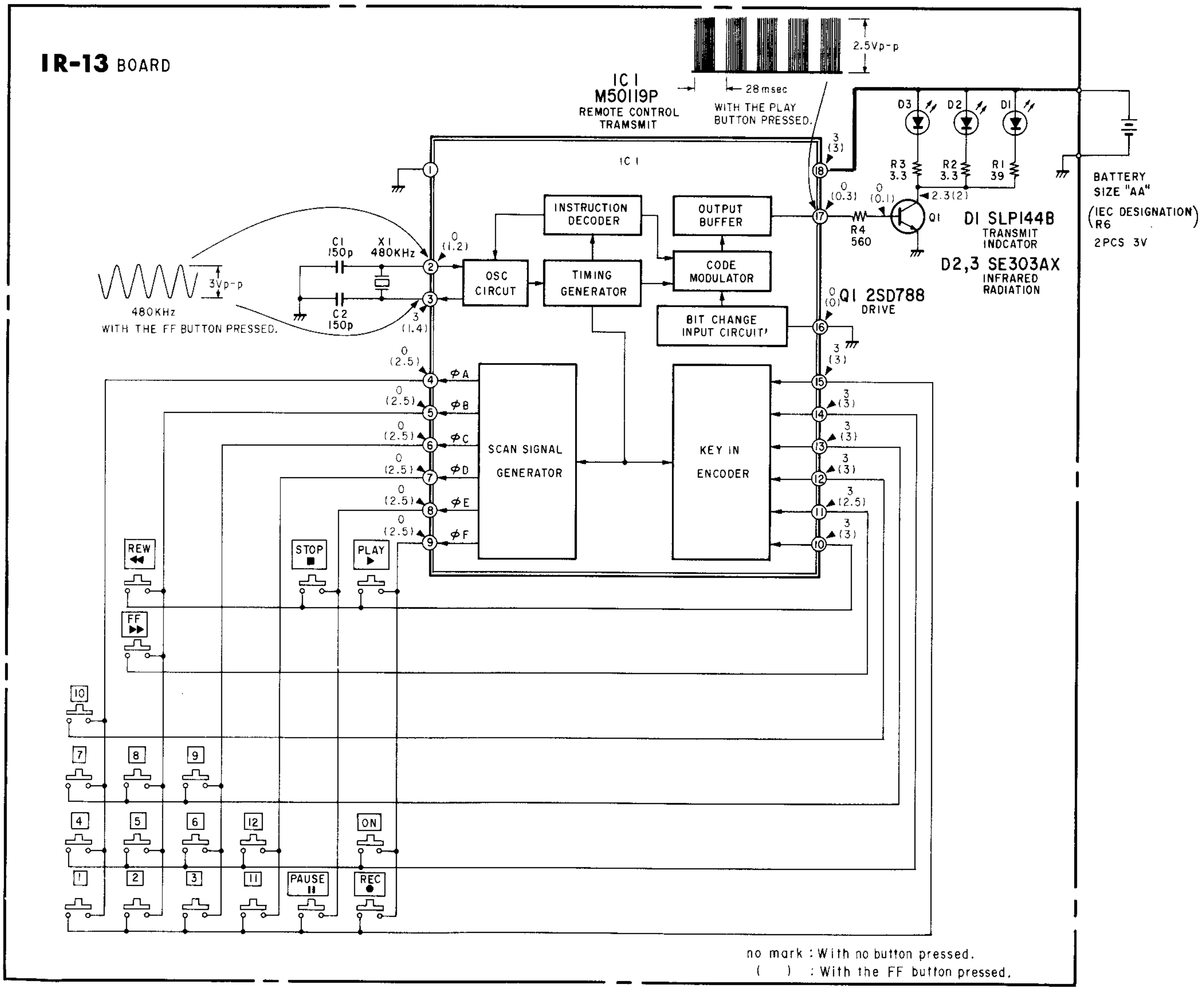
2. PRINTED WIRING BOARD

[IR-13 BOARD]


S12
ON
S3
3
S9
6
S15
9
S10
12
S6
REC
IC1
S26
FF
D2
S2
2
S8
5
S14
8
S4
11
S35
STOP
S36
PLAY
R2
D3
S5
PAUSE
S1
1
S7
4
S13
7
S19
10
S32
REW
R3
D1
C2
C1
X1
BATTERY
Q1
R4
R1
1-610-257
11
10
11
12
13
14
15
16
18

1
2
3
4

3. SCHEMATIC DIAGRAM


IR-13 BOARD
2.5Vp-p
28msec
WITH THE PLAY BUTTON PRESSED.
IC1
M50119P
REMOTE CONTROL TRAMSMIT
IC1
INSTRUCTION DECODER
OUTPUT BUFFER
OSC CIRCUT
TIMING GENERATOR
CODE MODULATOR
BIT CHANGE INPUT CIRCUIT
SCAN SIGNAL GENERATOR
KEY IN ENCODER
C1 150p
X1 480KHz
C2 150p
0 (1.2)
3 (1.4)
3Vp-p
480KHz
WITH THE FF BUTTON PRESSED.
ΦA
ΦB
ΦC
ΦD
ΦE
ΦF
0 (2.5)
3 (3)
0 (0.3)
0 (0.1)
2.3(2)
3 (2.5)
0 (0)
D3
D2
D1
R3 3.3
R2 3.3
R1 39
R4 560
Q1
BATTERY SIZE "AA"
(IEC DESIGNATION R6)
2PCS 3V
D1 SLP144B
TRANSMIT INDCATOR
D2,3 SE303AX
INFRARED RADIATION
Q1 2SD788
DRIVE
REW ◀◀
FF ▶▶
STOP ■
PLAY ▶
10
7
8
9
4
5
6
12
ON
1
2
3
11
PAUSE ❚❚
REC ●

no mark : With no button pressed.
( ) : With the FF button pressed.

5
6
7
8
9
10

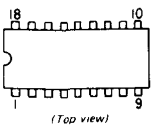
- All resistors are in ohms, 1/6W unless otherwise noted.
- All capacitors are in μF (p:pF) unless otherwise noted.
  50V or less are not indicated except for electrolytic capacitors.
- ━━ : B + bus.

The voltage value is measured using a digital tester (10MΩ/V).

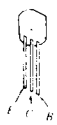
When indicating parts by reference number, please include the board name.

- ○— indicates a lead wire mounted on the component side.
- ●— indicates a lead wire mounted on the printed side.
- ▨ Conductor side (inner)
- Conductor Side
- ░ B + patten

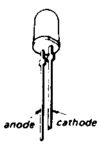
M50119P



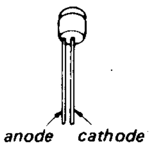
2SD788



SE303AX
SE303AY



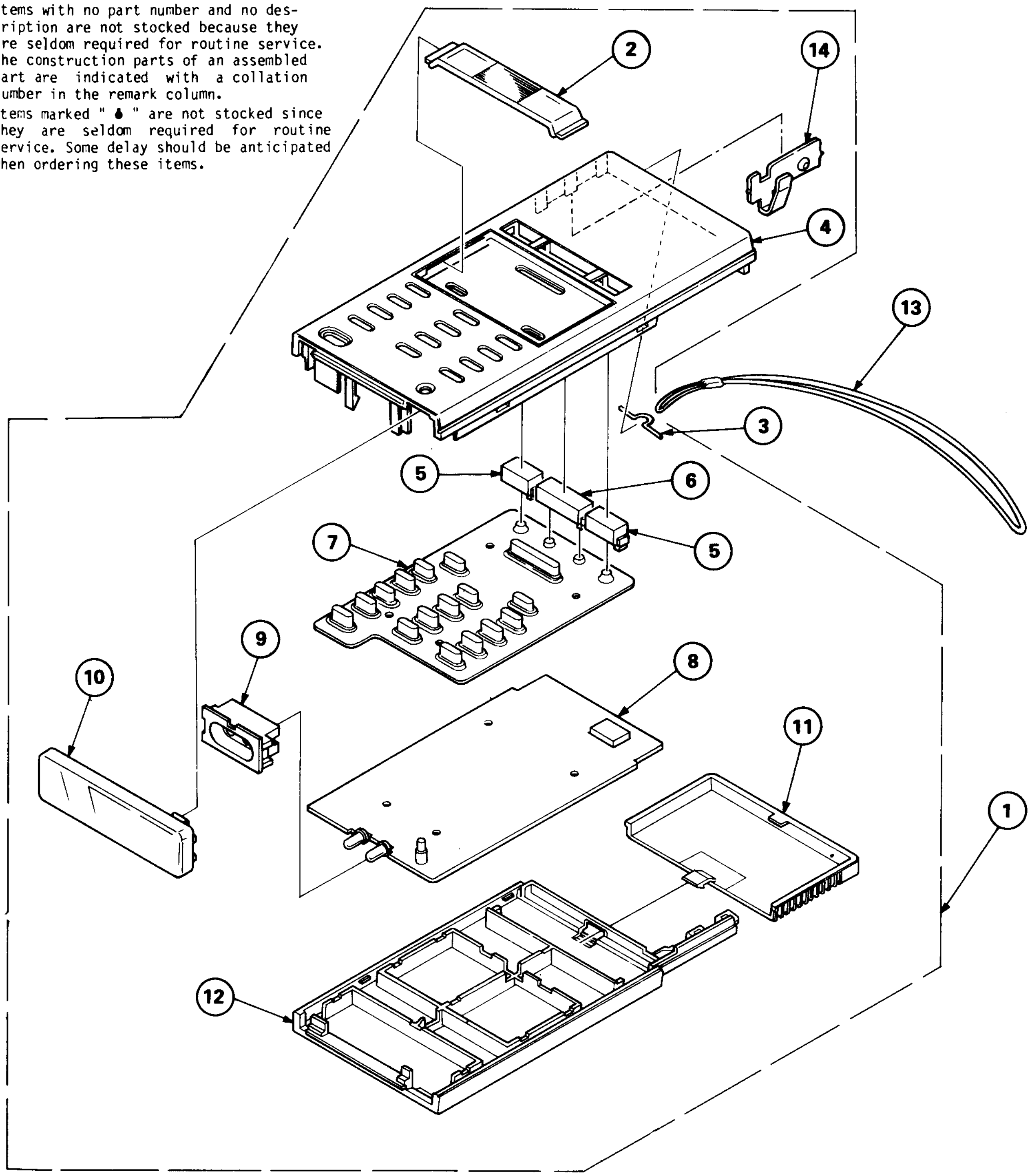
SLP144B



4. EXPLODED VIEW

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
1	A-6765-177-A	COMMANDER ASSY	2-12,14	8	♠:1-610-257-00	IR-13 BOARD	
2	2-290-603-00	CURSOR		9	2-298-402-00	MIRROR	
3	♠:2-290-630-00	STOPPER, HOLDER		10	2-290-608-00	PLATE, FROSTED	
4	X-2374-604-0	CASING (L) ASSY		11	2-290-606-00	COVER, BATTERY	
5	2-290-633-00	PUSH BUTTON (M)		12	2-290-611-00	CASE, LOWER	
6	2-290-632-00	PUSH BUTTON (L)		13	4-352-958-00	STRAP, HAND	
7	2-374-636-00	RUBBER (L), CONTACT		14	4-350-925-00	TERMINAL (C), BATTERY	

5. ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

- =>: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

CAPACITORS
- MF : µF, PF : µµF

RESISTORS
- All resistors are in ohms
- F : nonflammable

COILS
- MMH : mH, UH : µH

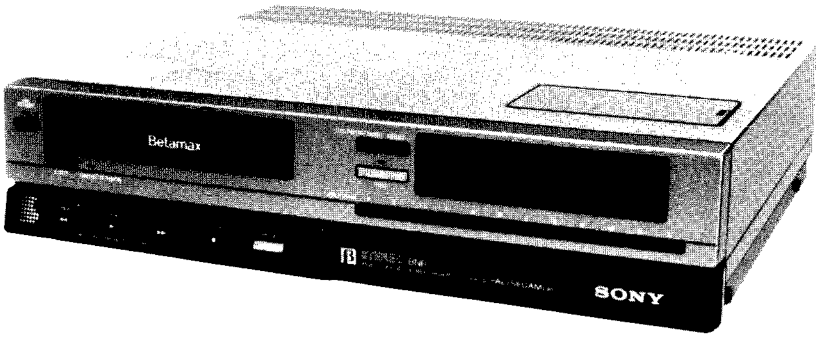
When indicating parts by reference number, please include the board name.

Ref.No.	Part No.	Description	Remark
	♦:1-610-257-00	IR-13 BOARD ***********	
	2-290-601-00	TERMINAL (A), BATTERY	
	2-290-602-00	TERMINAL (B), BATTERY	
		CAPACITOR	
C1	1-102-108-00	CERAMIC 150PF 10% 50V	
C2	1-102-108-00	CERAMIC 150PF 10% 50V	
		DIODE	
D1	8-719-901-44	DIODE SLP144B	
D2	8-719-193-03	DIODE SE303AX	
D3	8-719-193-03	DIODE SE303AX	
		IC	
IC1	8-759-600-07	IC M50119P	
		TRANSISTOR	
Q1	8-729-378-84	TRANSISTOR 2SD788	
		RESISTOR	
R1	1-247-797-00	CARBON 39 5% 1/6W	
R2	1-247-771-00	CARBON 3.3 5% 1/6W	
R3	1-247-771-00	CARBON 3.3 5% 1/6W	
R4	1-247-825-00	CARBON 560 5% 1/6W	
		CRYSTAL	
X1	1-527-476-00	OSCILLATOR, CERAMIC	

SL-C44PS

ADJUSTMENT MANUAL

West Germany Model



711B CHASSIS

September, 1983

File this adjustment manual with the service manual.

Beta

VIDEO CASSETTE RECORDER

SONY®

MICROFILM

Consumer
VIDEO

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1-2. DISMOUNTING THE RY-1 BOARD

1) Stand the set with the right side panel on the bottom.
2) Remove the two screws ①, holding the RY-1 board.
3) Swing open the RY-1 board in the direction shown by the arrow Ⓐ and rest it on a cassette.

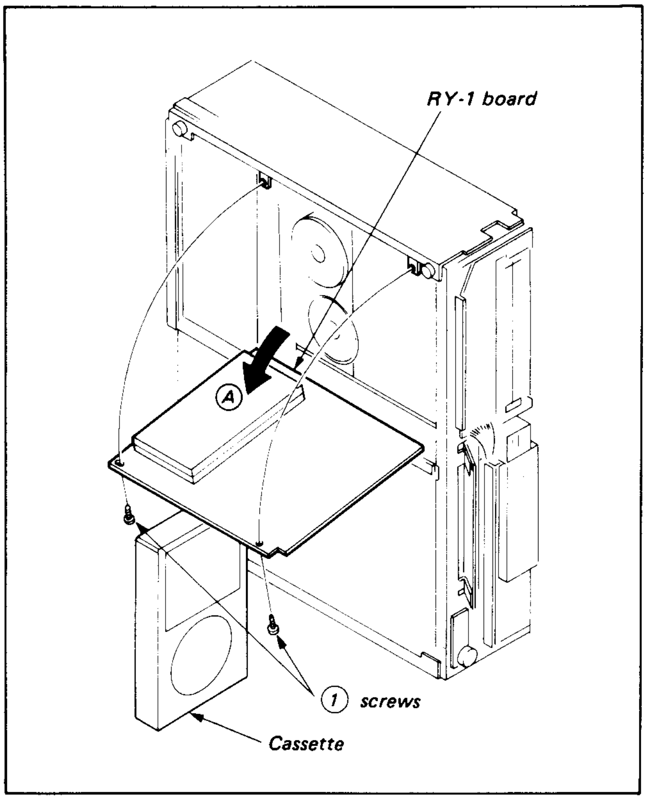


Fig. 1-2. Dismounting the RY-1 Board

1-3. DISMOUNTING THE TU-50 BOARD

1) Remove the four screws ① holding the TU-50 board.
2) Remove the TU-50 board in the direction shown by the arrow Ⓐ.

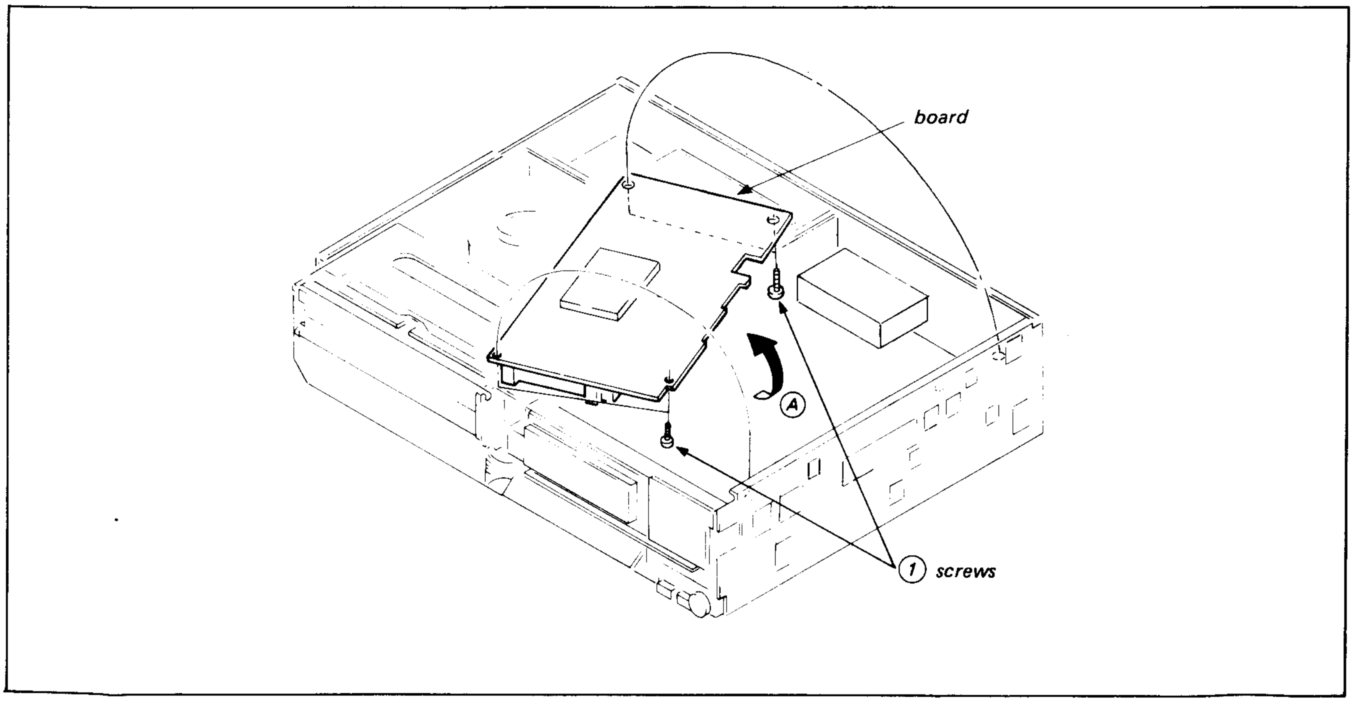


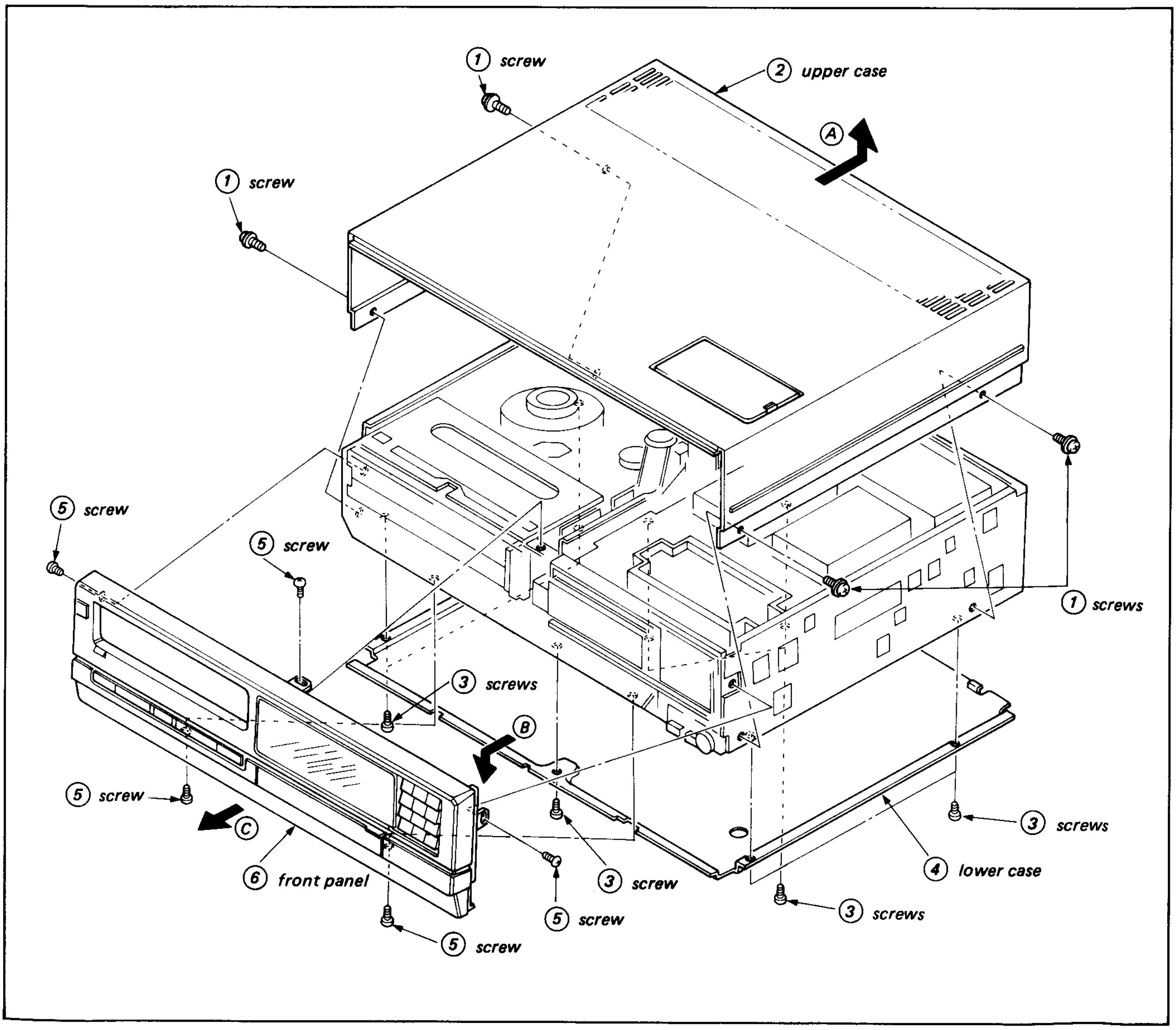
Fig. 1-3. Dismounting the TU-50 Board

SECTION 1

PREPARATION FOR MECHANICAL SECTION CHECK, ADJUSTMENT, AND REPLACEMENT

1-1. REMOVAL OF THE CASE AND FRONT PANEL

1) Remove the four screws ①.
2) Remove the upper case ② in the direction shown by the arrow Ⓐ.
3) Remove the seven screws ③ and the lower case ④ in the direction shown by the arrow Ⓑ.
4) Remove the five screws ⑤ and the front panel ⑥ in the direction shown by the arrow Ⓒ.



① screw
② upper case
Ⓐ
① screw
⑤ screw
⑤ screw
① screws
③ screws
Ⓑ
⑤ screw
Ⓒ
③ screws
④ lower case
⑥ front panel
③ screw
⑤ screw
③ screws
⑤ screw

Fig. 1-1. Removal of the Case and Front Panel

1-4. DISMOUNTING THE YC-25 BOARD

1) Stand the set with the power source side on the bottom.
2) Remove the screw ① and the panel connector ②.
3) Remove the four screws ③, holding the YC-25 board.
4) Swing open the YC-25 board in the direction shown by the arrow Ⓐ and rest it on a cassette.

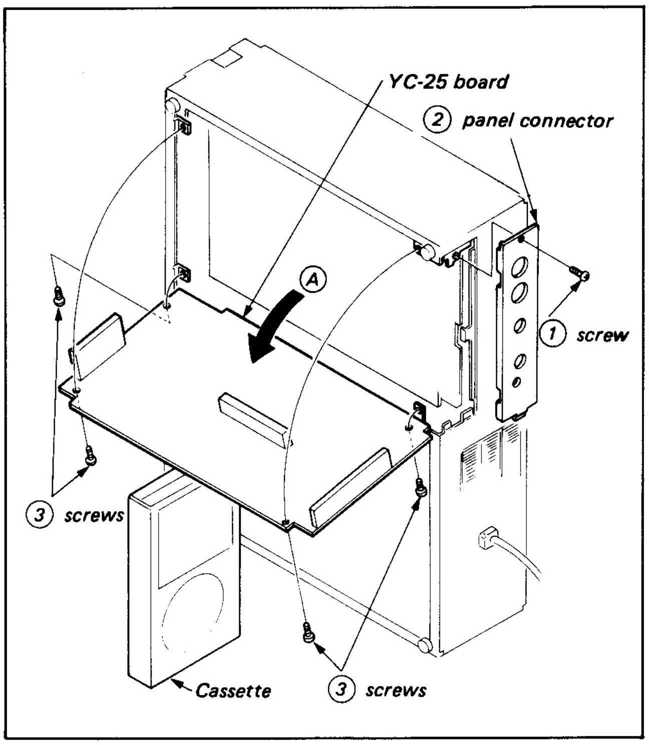

YC-25 board
② panel connector
Ⓐ
① screw
③ screws
Cassette
③ screws

Fig. 1-4. Dismounting the YC-25 Board

1-5. REMOVING OF POWER BLOCK

1) Remove the two screws ①, and the shield plate.
2) Pull out the six connectors ②, (CN1, 2, 3, 4, 5, 6) from the power block side.
3) Remove the three screws ③ and the power cord bracket.
4) Remove the five screws ④, holding the power block.
5) Remove the power block in the direction shown by the arrow Ⓐ.

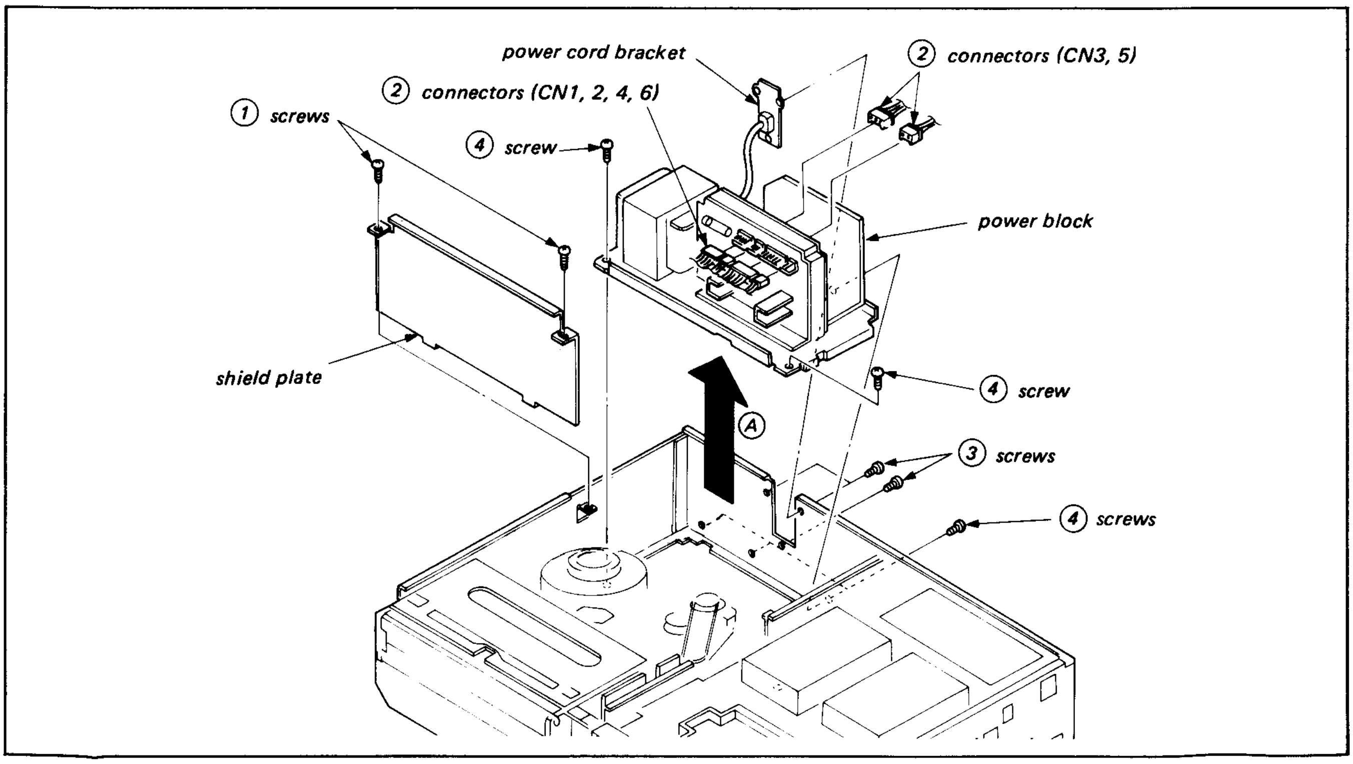

power cord bracket
② connectors (CN3, 5)
② connectors (CN1, 2, 4, 6)
① screws
④ screw
power block
shield plate
④ screw
Ⓐ
③ screws
④ screws

Fig. 1-5. Removing of Power Block

1-6. MECHANICAL OPERATION AFTER REMOVING THE FL CASSETTE COMPARTMENT

1-6-1. Attaining Threading Complete State after Removing the FL Cassette Compartment.

Refer to Section 3-6 describing the dismounting of the FL cassette compartment.

1) Short Pins (1) and (2) and also Pins (3) and (4) of the connector (CN301) on the CS-3 board using two wires.

Caution:
Do not contact other parts in the set with the wires.

2) Threading is started by turning on the POWER button while pushing the CASSETTE IN switch with a finger.

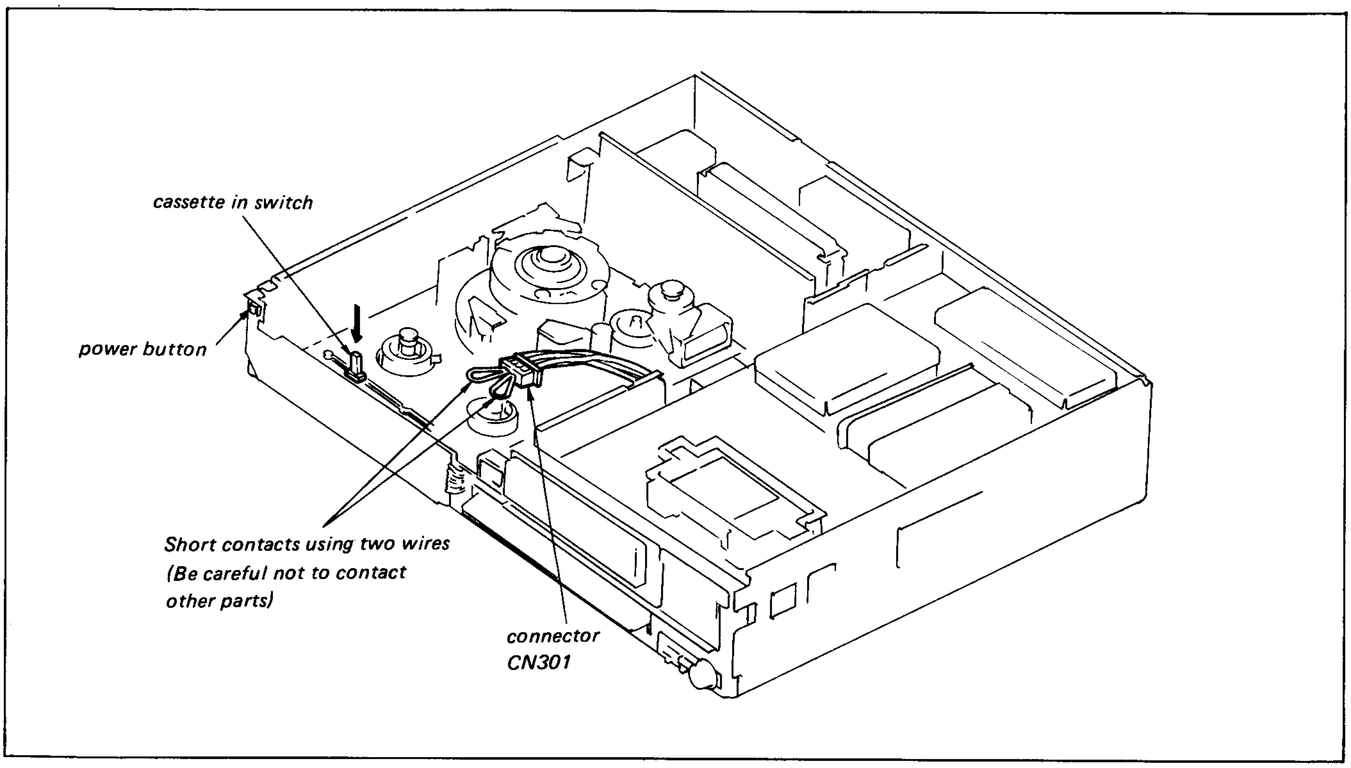

cassette in switch
power button
Short contacts using two wires (Be careful not to contact other parts)
connector CN301

Fig. 1-6. Threading After Removing FL Cassette Compartment

1-6-2. Setting Up PLAY Mode without Inserting a Cassette

Press the PLAY button after setting up the threading complete state as described in 1-6-1.

1-6-3. Setting Up REC Mode without Inserting a Cassette

1) Thread as described in 1-6-1, then press the RECORD PROOF switch shown in the diagram.
2) Press the REC button while depressing the RECORD PROOF switch.

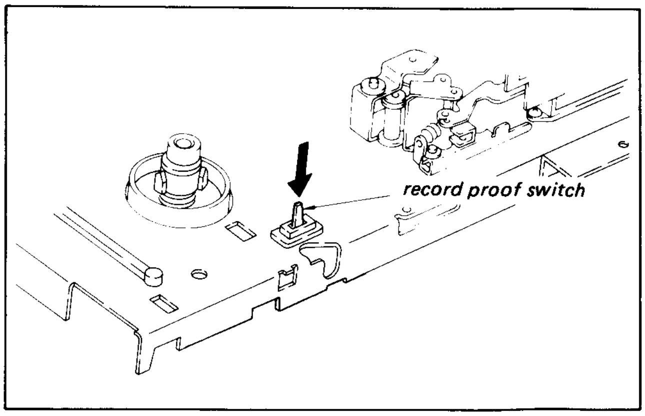

record proof switch

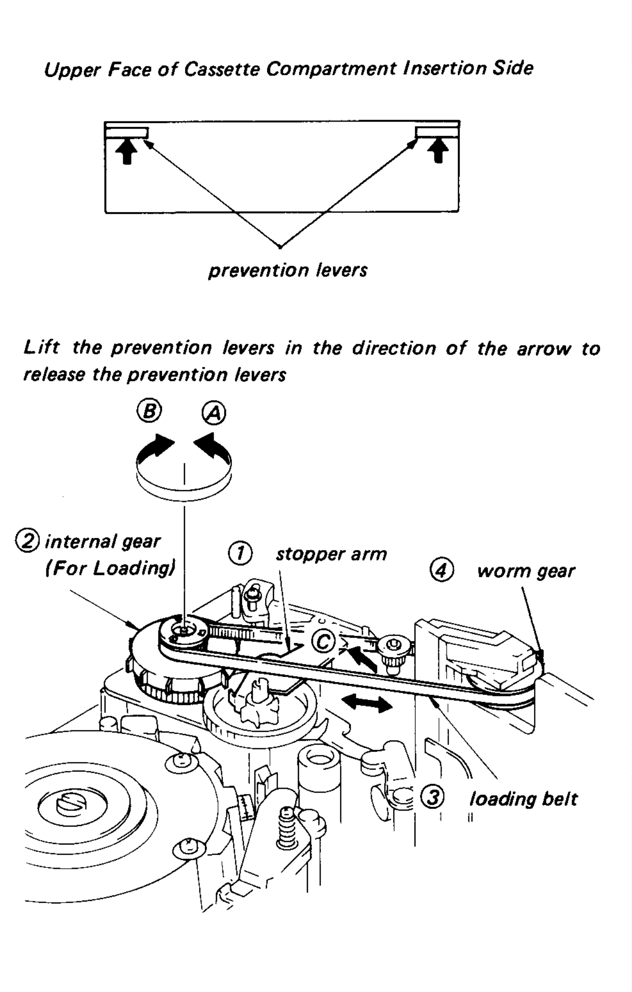
Fig. 1-7. Setting Up the REC Mode After Removing FL Cassette Compartment.

1-7. LOADING, THREADING, UNLOADING, AND UNTHREADING WHILE THE POWER IS OFF

1-7-1. Manual Loading and Unloading

1) Press stopper arm ① in the direction of the arrow Ⓒ after releasing the prevention levers on the right and left sides inside the cassette compartment. Unlock the internal gear ②.
2) Rotate the internal gear ② in the direction of the arrow Ⓐ until loading is completed.
3) Rotate the internal gear ② in the direction of the arrow Ⓑ during unloading.

Note:
Rotate the worm gear ④ with a finger to load and unload when the loading belt ③ has become detached.


Upper Face of Cassette Compartment Insertion Side

Lift the prevention levers in the direction of the arrow to release the prevention levers

Fig. 1-8. Manual Loading and Unloading

1-7-2. Manual Threading and Unthreading

1) Rotate the loading gear in direction of the arrow Ⓐ until threading is completed.
2) Rotate the loading gear in the direction of the arrow Ⓑ for unthreading.

Caution:
Do not use a screwdriver, or other item, to rotate the loading gear. Push the side of the gear with a finger to rotate.

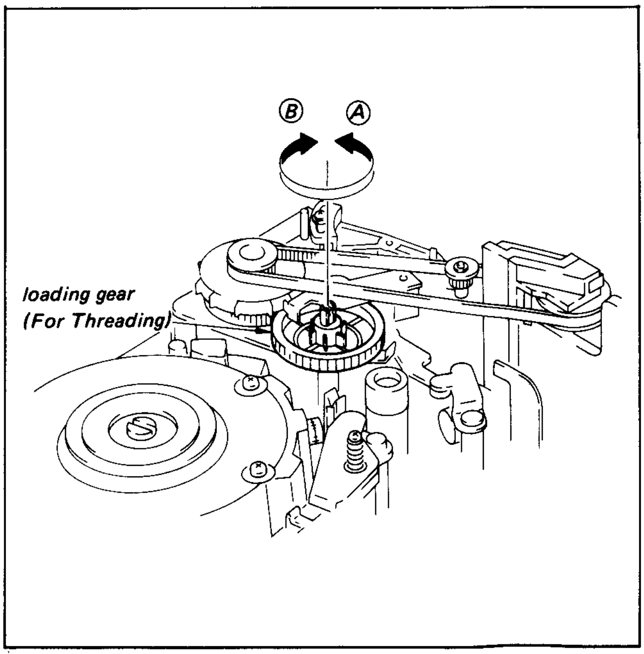


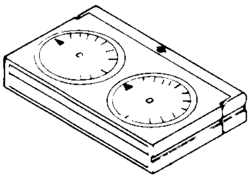
Fig. 1-9. Manual Threading and Unthreading

1-8. TOOLS AND FIXTURES REQUIRED

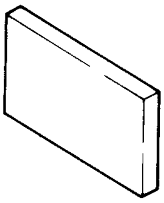
Ref. No.	Name	Part No.	Fixture No.
J-1	Forward-Back Tension Measurement Tape	J-6080-003-C	SL-0003C
J-2	Parallel Plate	J-6086-750-A	SL-0657
J-3	Small Adj. Mirror Spare Mirror	J-6080-029-A J-6080-030-1	SL-5052
J-4	Alignment Tape	8-969-995-52	KR5-2H
J-5	Cleaning Fluid	Y-2031-001-0	
J-6	Thickness Gauge	9-911-053-00	
J-7	Cleaning chamois	2-034-697-00	
J-8	Head Demagnetizer		
J-9	Lapping Tape	8-888-004-00	
J-10	Dihedral Adj. Screw	J-6080-013-1	SL-0013
J-11	Sector type gauge 50 g Max	7-732-050-20	
J-12	Reel Table Tension Fixture	J-6080-011-A	SL-0011

ITEMS J-5, J-6, J-7, J-8 can be obtainted locally

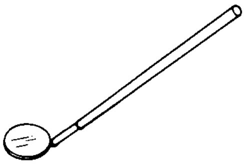
J-1



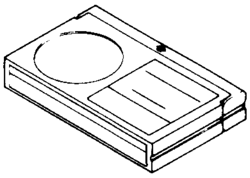
J-2



J-3

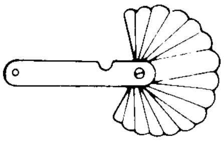


J-4

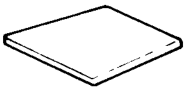


J-5

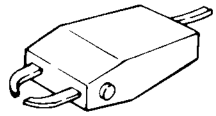
J-6



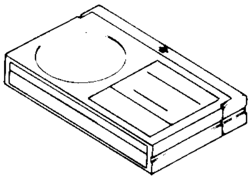
J-7



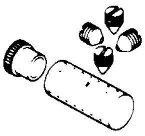
J-8



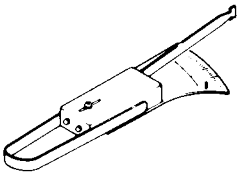
J-9



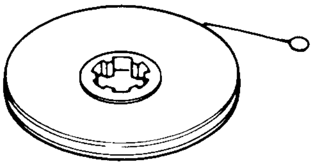
J-10



J-11



J-12



SECTION 2
PERIODIC CHECK AND MAINTENANCE

The following maintenance and periodic checks are recommended to ensure optimum machine function and performance and to prolong machine and tape life.

2-1. MAINTENANCE AFTER REPAIR

Carry out maintenance work for the following items after repairing the machine regardless of the period of use.

2-1-1. Rotary Head Disc Assembly

1) Place a piece of chamois (tool Ref. No. J7) soaked in cleaning fluid (tool Ref. No. J5) lightly against the rotary drum assembly and clean the rotary head disc assembly by slowly rotating it by hand. (Important-Do not clean by rotating with the motor on.)
2) Do not clean the head tip by moving the chamois in a vertical direction. This may damage the head tip.

2-1-2. Cleaning of the Tape Transportation System

Clean the tape contact surfaces, such as the tape guide, drum assembly surfaces, capstan, and pinch roller using cleaning piece etc. soaked in cleaning fluid.

2-1-3. Cleaning of the Drive System

Clean the driving elements (reel base surfaces, etc.) using a cloth soaked in cleaning fluid.

2-2. PERIODIC CHECK ITEMS

Carry out maintenance checks for the following items depending on the duration of use.

Maintenance & Check	Operating Hours (H)	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	Remarks
Tape Trans-Portation System	Cleaning of tape transportation system	○	○	○	○	○	○	○	○	○	○	This cleaning must be done whenever a repair is made.
	Cleaning and degaussing of ACE ass'y	○	○	○	○	○	○	○	○	○	○	
	Cleaning & degaussing of video disk ass'y	○	○	○	○	○	○	○	○	○	○	The life of the head varies, depending on operational conditions and method.
Driving System	Loading belt	○	○	○	○	○	○	○	★	○	○	• This cleaning must be done whenever a repair is made. • Replacement must be done depending on operating hours on the table, or every two years.
	Cleaning of iron core and opening of solenoid	–	–	–	○	–	–	–	○	–	–	Wipe iron core and opening of solenoid with dry cloth.
Performance Confirmation	Abnormal sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Adjust or replace the section which causes abnormal sound.
	Measurement of FWD back tension	–	☆	–	☆	–	☆	–	☆	–	☆	Confirmation must be made according to section Specified value: 30 ± 5 g·cm (When measured with torque cassette tape)
	Confirmation of brake system	–	☆	–	☆	–	☆	–	☆	–	☆	Confirmation must be made according to section
	Confirmation of record & playback functions	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Perform the confirmation whenever repair is made.

○ Cleaning ★ Replacement ☆ Confirmation

Note: When overhauling, refer to the above for part replacement.

SECTION 3
CHECK, ADJUSTMENT, AND REPLACEMENT PROCEDURES

3-1. REPLACEMENT OF ROTARY HEAD DISC ASSEMBLY

3-1-1. Removal of Rotary Head Disc Assembly

1) Unscrew the two screws ① holding the damper assembly and remove it.
2) Remove the hexagonal socket bolt ② with an Allen wrench and dismount the upper drum assembly.

   Note:
   Remove the upper drum while rotating it, without moving the adjust plate ④. Be very careful not to move the adjust plate ④, or tape path will be affected.
3) Unsolder the rotary head disc circuit board. (four red and white lead wires)
4) Remove the two hexagonal socket bolts ③ and dismount the disc assembly.

   Note:
   Be very careful not to touch the head tip, or touch it against anything.

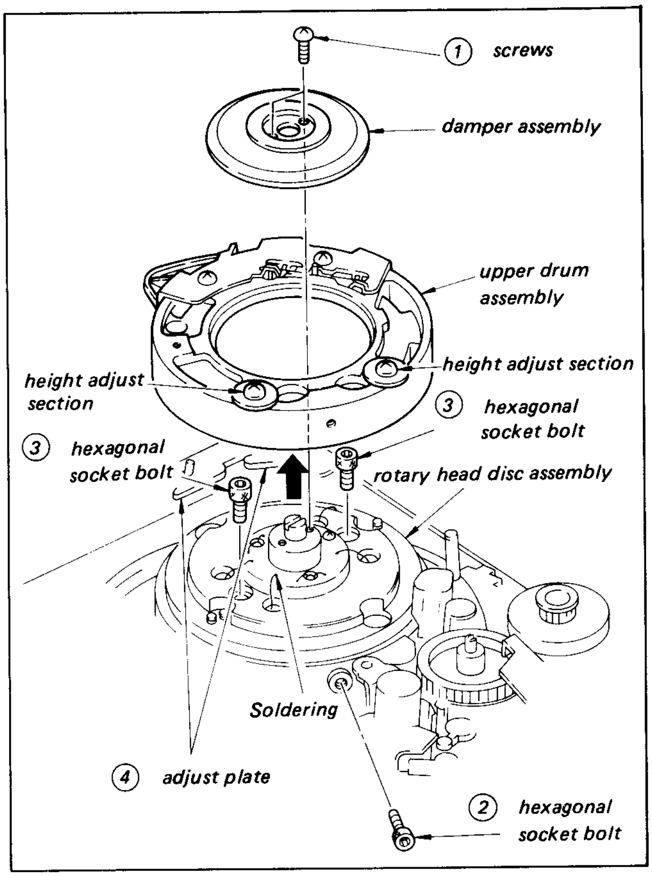

① screws
damper assembly
upper drum assembly
height adjust section
height adjust section
③ hexagonal socket bolt
③ hexagonal socket bolt
rotary head disc assembly
Soldering
④ adjust plate
② hexagonal socket bolt

Fig. 3-1. Dismounting the Rotary Head Disc Assembly

3-1-2. Replacement

1) Position the rotary head disc, paying attention to the direction of the red and white lead wires.
2) Tighten the hexagonal socket bolt ③ and solder the lead wire.

   Note:
   Solder securely, being careful not to break the lead wires.
3) Mount the upper drum without moving the adjust plates ④ as when dismounting it and tighten the hexagonal socket bolt ② while pressing two height adjust sections.

   Caution:
   Be careful not to touch the head tip when replacing the drum.

   Note:
   When replacing the rotary drum head, it may be difficult to remove it from the head disc. In this event, follow the procedure below. (Fig. 3-2)

   (1) Remove the hexagonal socket bolts ③ bolting the rotary head disc assembly.
   (2) When the rotary head disc assembly is fitted tightly and cannot be readily dismounted, alternately and slowly insert the two hexagonal socket bolts ③ unbolted in (1) above it removal holes at 90° to the mounting holes. The rotary head disc assembly can be lifted by the force of the two screws and dismounted easily.

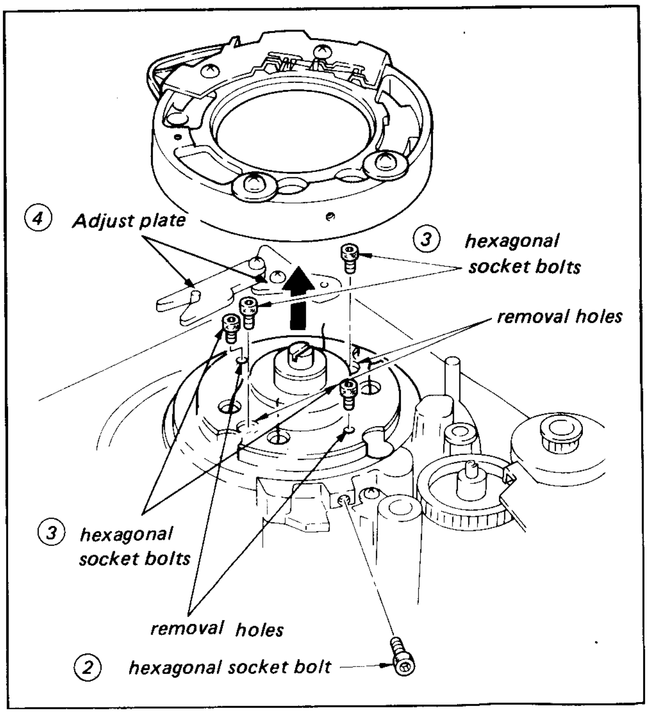

④ Adjust plate
③ hexagonal socket bolts
removal holes
③ hexagonal socket bolts
removal holes
② hexagonal socket bolt

Fig. 3-2. Replacing Rotary Head Disc Assembly

3-2. VIDEO HEAD DIHEDRAL ADJUSTMENT

Generally this adjustment is not necessary except after video head disc replacemet. (Video head discs for repair and replacement are precision adjusted using a microscope, and there is virtually never a need for readjustment.)

When determining the appropriate video head angle, play back an alignment tape. Make sure the tracking control knob is set at the center click position. When the check is made at a position other than the center click (tracking is off), the pictures will be played back as if the angle is wrong even if it is correct.

Be sure the ACE assembly position adjustment is completed (refer to "Tape Path Adjustment") before making this adjustment.

[Checking Method]

Play back the monoscope signal section of the alignment tape (KR5-2H) after setting the tracking control knob at the center click position . Verify that only one monoscope perpendicular line is played back immediately underneath the switching pulse, and not two lines.

If only one perpendicular line can be seen, the angle is correct, and no adjustment is needed.

If there are two, adjust as follows.

[Adjustment Procedure]

1. As shown in Fig. 3-3, screw in the two angle adjustment screws (Tool Ref. No.J-10) so that the lead wires from the video head are on the same level as the red adjusting screw hole and the top of the adjusting screw hole, and the top of the adjusting screw is on the same level as the top of the video head disc.

   (If not screwed in sufficiently, the heads of the adjustment screws hit the upper drum, and the video head disc no longer rotates. Conversely, if they are screwed in too far, the head base moves, and the angle of the video head shifts considerably.)

   Caution:

   The white lead wire is a reference wire and should never be moved.

2. Screw in either one of the two adjustment screws until it feels tight. Additional tightening beyond this position moves the video head and so the angle can be adjusted.
3. Play back the monoscope signal section of the alignment tape (KR5-2H) and verify the angle. If the angle of the perpendicular line is larger than before adjustment, screw the adjustment screw counterclockwise to loosen and adjust the screw on the other side.
4. After adjusting, unscrew and check again.

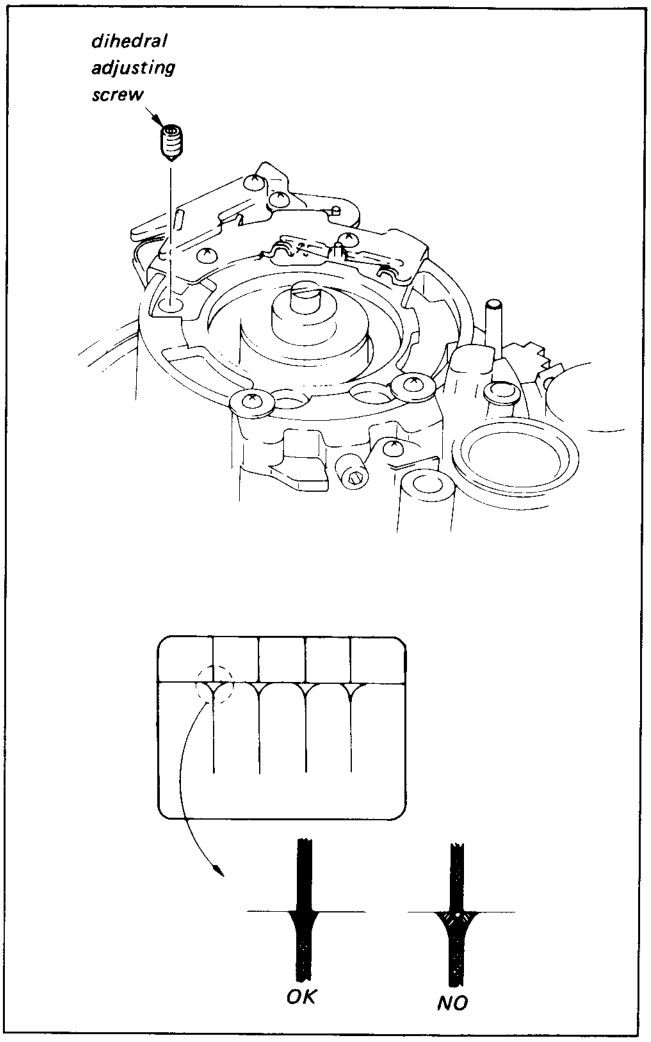


Fig. 3-3. Video Head Dihedral Adjustment (1)

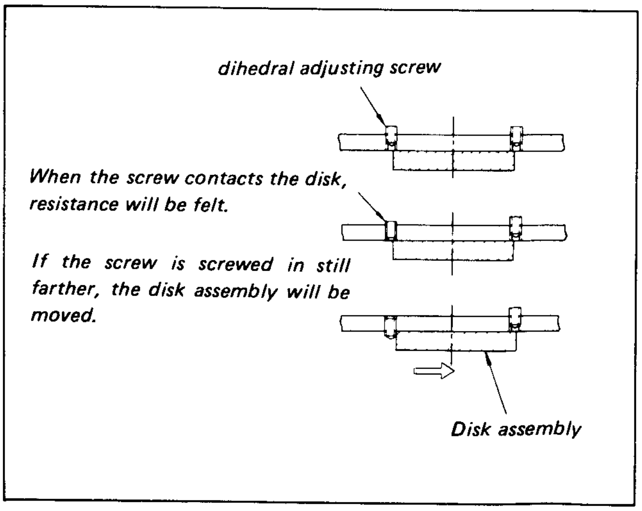
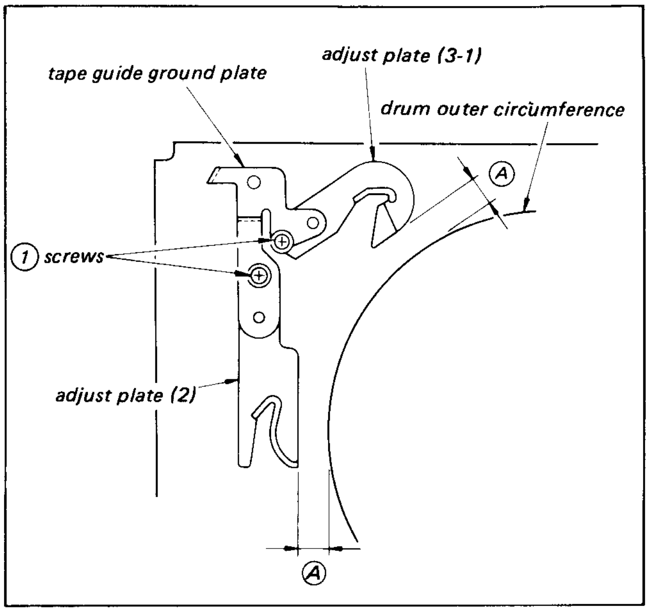

dihedral adjusting screw
When the screw contacts the disk, resistance will be felt.
If the screw is screwed in still farther, the disk assembly will be moved.
Disk assembly

Fig. 3-4. Video Head Dihedral Adjustment (2)

3-3. REPLACEMENT AND ADJUSTMENT OF DRUM ASSEMBLY

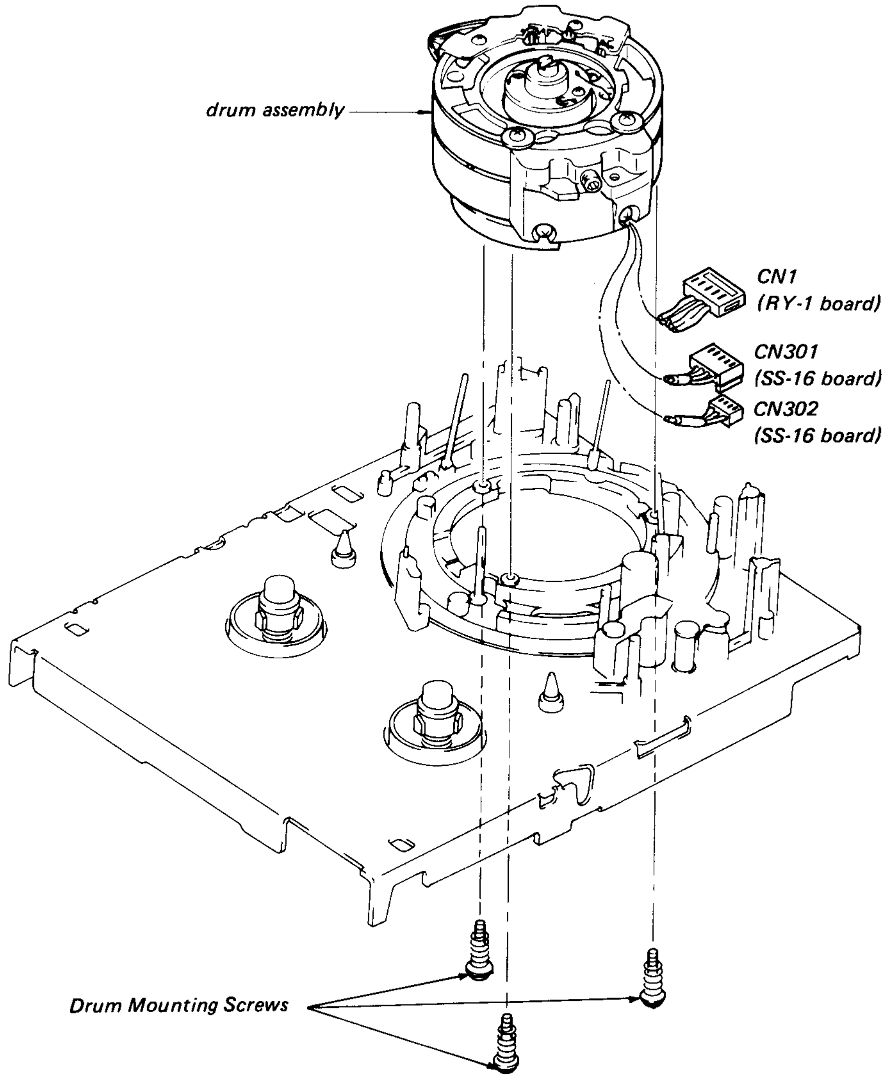
3-3-1. Replacement

1) Measure and record the two gaps (Ⓐ) between the upper drum tape holding section and the adjust plates (in Fig. 3-5). (Do not forget to do this, as the adjust plate mounting position affects the tape path.)
2) Unscrew the screws ① shown in Fig. 3-5 and remove the tape guide ground plate and adjust plates (2) and (3-1).
3) Remove the connector and three drum mounting screws from the bottom of the chassis and remove the drum assembly body.
4) Re-assemble the parts in reverse order.
5) Adjust according to "Tape Path Adjustment" after replacing the drum.



adjust plate (3-1)
tape guide ground plate
drum outer circumference
Ⓐ
① screws
adjust plate (2)
Ⓐ

Fig. 3-5. Replacing Drum



drum assembly
CN1
(RY-1 board)
CN301
(SS-16 board)
CN302
(SS-16 board)
Drum Mounting Screws

Fig. 3-6. Dismounting Drum Assembly

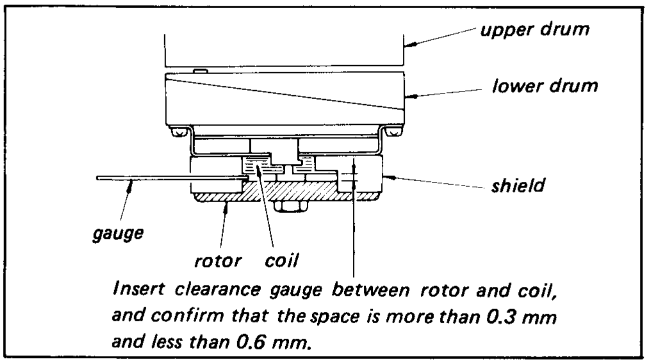
3-3-2. Motor Clearance Adjustment when Replacing Drum Assembly

When replacing the drum assembly, adjust so that clearance between the rotor and coil is 0.3 — 0.6 mm. (See Fig. 3-7)

[Procedure]

1) When re-assembling the drum, use the spacer which was removed and confirm that the 0.3 mm side of the clearance gauge included with the repair drum can be inserted, and that the 0.6 mm side cannot be inserted.
2) If this specification is not satisfied, dispose of the old spacer and use the spacers (0.3 mm × 4) included with the new repair drum as needed.

* **Clearance Confirmation**


upper drum
lower drum
shield
gauge
rotor
coil

Insert clearance gauge between rotor and coil, and confirm that the space is more than 0.3 mm and less than 0.6 mm.

Fig. 3-7. Adjusting Motor Clearance When Replacing Drum Assembly

[Removal of Stator, Rotor]

1) Remove nut ① and washer ②.
2) Remove rotor ③ from stator ④.
3) Unscrew the two screws ⑤ and remove stator from drum body.

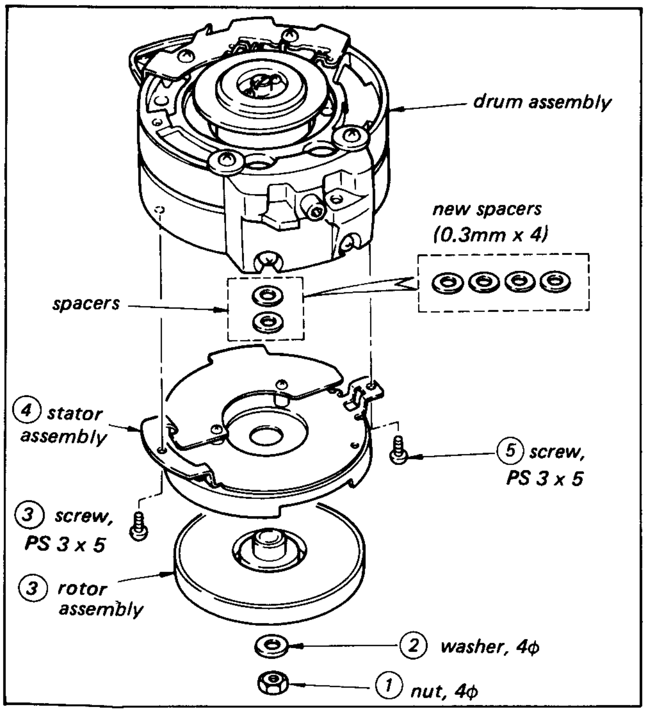

drum assembly
new spacers (0.3mm x 4)
spacers
④ stator assembly
⑤ screw, PS 3 x 5
③ screw, PS 3 x 5
③ rotor assembly
② washer, 4ϕ
① nut, 4ϕ

Fig. 3-8. Dismounting Stator and Rotor When Replacing Drum Assembly

3-4. REPLACEMENT AND ADJUSTMENT OF CAPSTAN MOTOR

3-4-1. Removal of the Capstan Motor (Fig. 3-9)

Unscrew screws ①, ②, ③ and remove the capstan motor from the mechanism chassis.

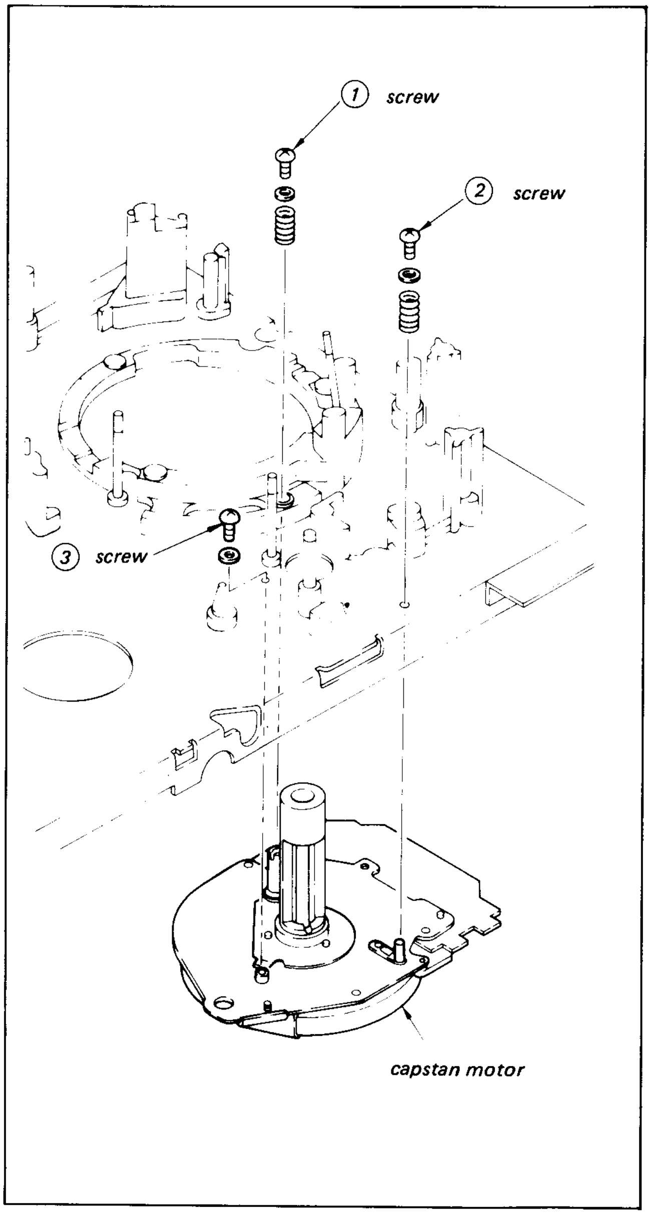

① screw
② screw
③ screw
capstan motor

Fig. 3-9. Dismounting Capstan Motor

3-4-2. Perpendicular Adjustment of Capstan Spindle

Be sure to adjust as follows after the capstan motor has been replaced or removed:

1) Place parallel plate (Tool Ref. No. J-2) on No. 10 guide sleeve of the pinch press arm assembly perpendicularly, as shown in Fig. 3-10.
2) Loosen screw ①.
3) Rotate adjusting screw ② and align the capstan spindle perpendicularly.
4) Tighten screw ① and fix the capstan motor.
5) Adjust according to "Tape Path Adjustment".

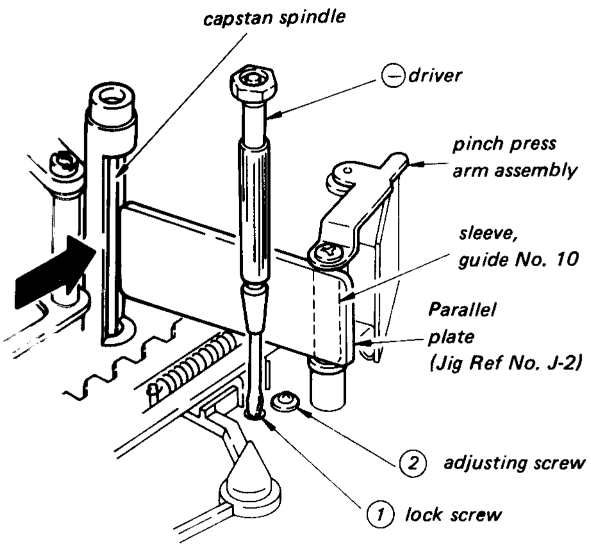

capstan spindle
⊖driver
pinch press arm assembly
sleeve, guide No. 10
Parallel plate (Jig Ref No. J-2)
② adjusting screw
① lock screw

Fig. 3-10. Perpendicular Adjustment of Capstan Motor Spindle

3-5. REMOVAL OF S COIL SENSOR ASSEMBLY (Fig. 3-11)

1) Remove spring ① and disengage hook ② to pull out the S coil sensor assembly.
2) Disconnect the connector from CN604 of the SS-16 board.

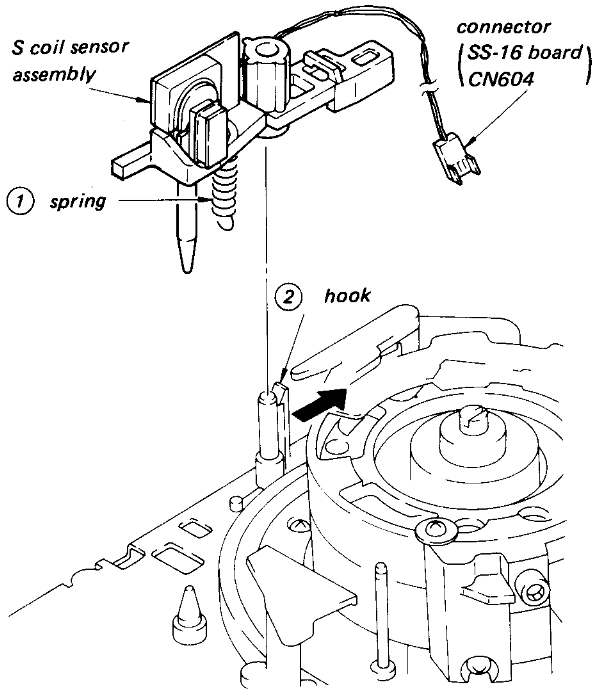

S coil sensor assembly
connector (SS-16 board CN604)
① spring
② hook

Fig. 3-11. Dismounting Tension Pickup Assembly

3-6. REMOVAL OF FL CASSETTE COMPARTMENT ASSEMBLY

1) Loosen the loading belt ①, exerting a force on the threading motor.
2) Remove the five mounting screws ② of the FL cassette compartment.
3) Disconnect the exposed connector from the CS-3 board (CN001) on the FL cassette compartment.
4) Lift the FL cassette compartment assembly in the direction shown by the arrow to remove.

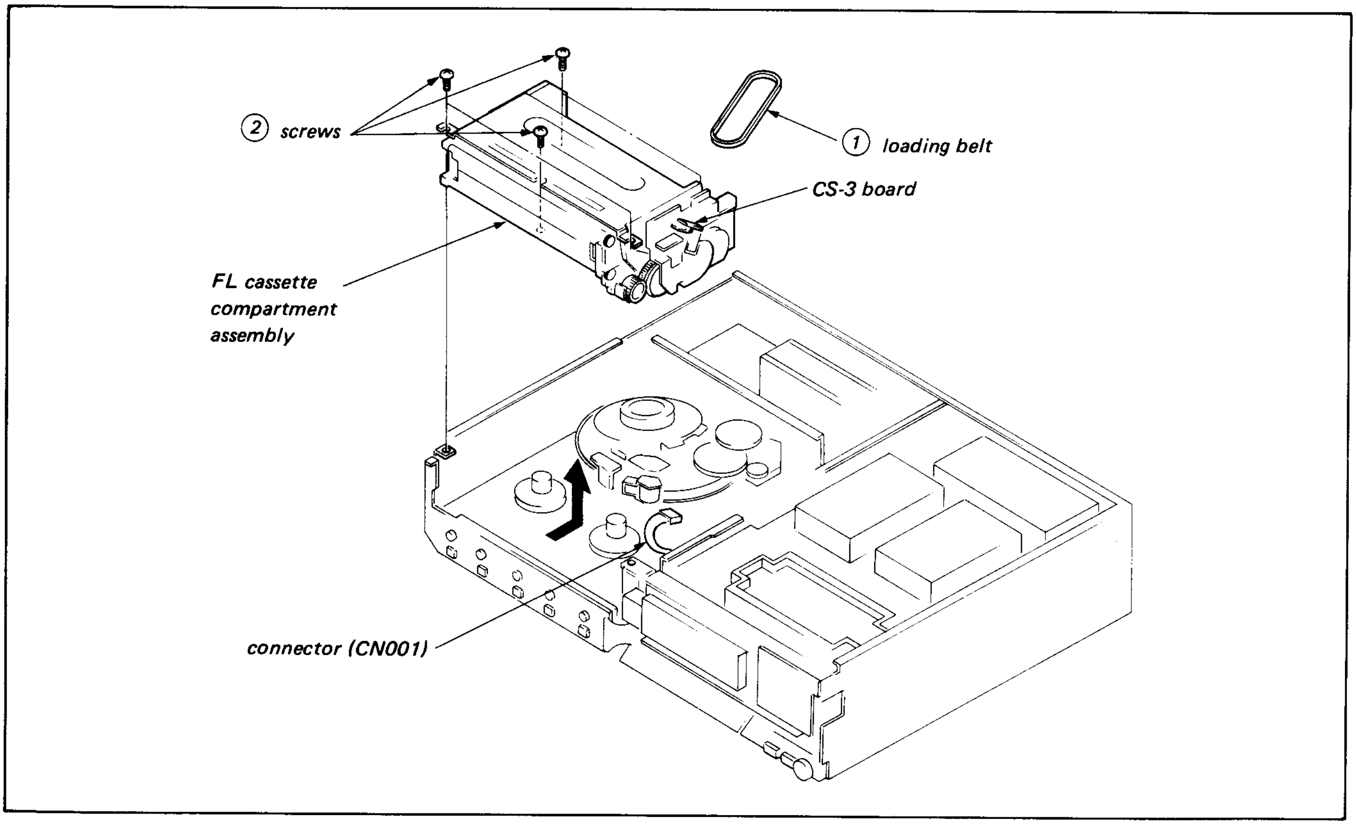

② screws
① loading belt
CS-3 board
FL cassette compartment assembly
connector (CN001)

Fig. 3-12. Removal of FL Cassette Compartment Assembly

3-7. ADJUSTMENT OF FL CASSETTE COMPARTMENT ASSEMBLY

3-7-1. Mounting of FL Cassette Compartment Assembly (Fig. 3-13, 14)

1) Stretch the two hooks ② of the FL cassette compartment on the mechanism chassis and place the cassette compartment in a predetermined position on the chassis.
2) Mount the FL cassette compartment assembly and loosely tighten the three screws ③.
3) Move the FL cassette compartment assembly longitudinally relative to the mechanism chassis, set in a predetermined position, then securely tighten the three mounting screws ③.
4) Suspend the loading belt ⑦ around the threading motor ④, tension pulley arm ⑤, and worm gear ⑥ and hold the loading belt ⑦ with the internal gear flange ⑧.
5) Push the car tension arm ⑤ in the direction of the arrow, to eliminate slack on the loading belt ⑦, then secure the arm ⑤ with the arm adjustment screw ①.
6) Insert the connector of the wire harness protruding from the body onto the connector CN001 ⑨ of the CS-3 board.

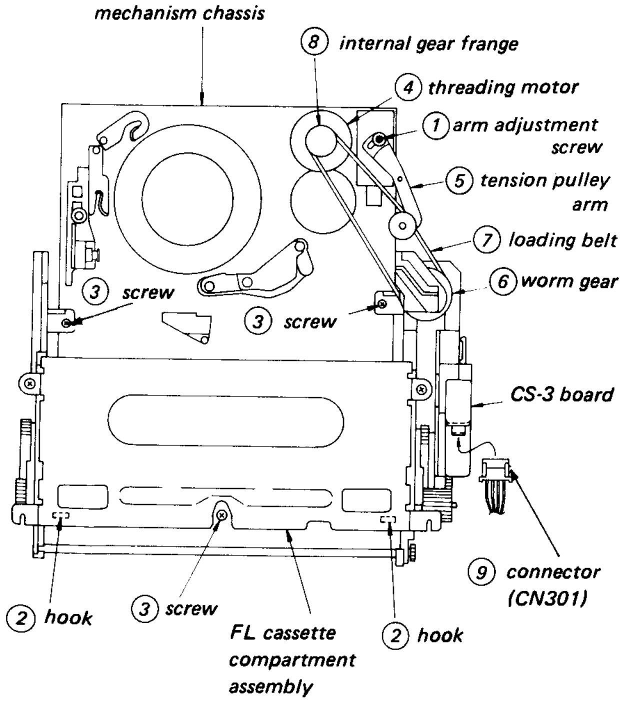

mechanism chassis
⑧ internal gear frange
④ threading motor
① arm adjustment screw
⑤ tension pulley arm
⑦ loading belt
⑥ worm gear
③ screw
③ screw
CS-3 board
⑨ connector (CN301)
② hook
③ screw
FL cassette compartment assembly
② hook

Fig. 3-13. Remounting FL Cassette Compartment

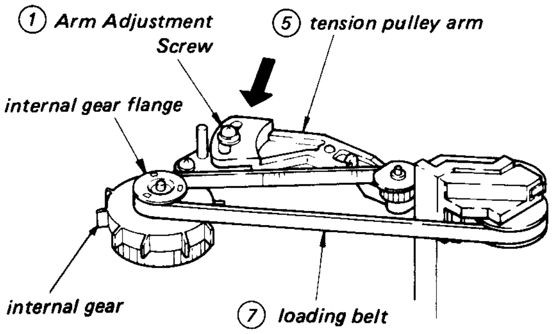

① Arm Adjustment Screw
⑤ tension pulley arm
internal gear flange
internal gear
⑦ loading belt

Fig. 3-14. Adjustment of Loading Belt

3-7-2. Adjustment of Cassette-ON Switch

Loosen the screw ② which is fixing the cassette-ON cam ①. Move the cassette-ON cam in the arrow direction so that the microswitch (cassette on) ⑤ is turned on when the gap between the left end of the driving roller ③ and the end/face/of the worm gear holder ④ is 8 mm to 10 mm. Then fasten the screw ② .

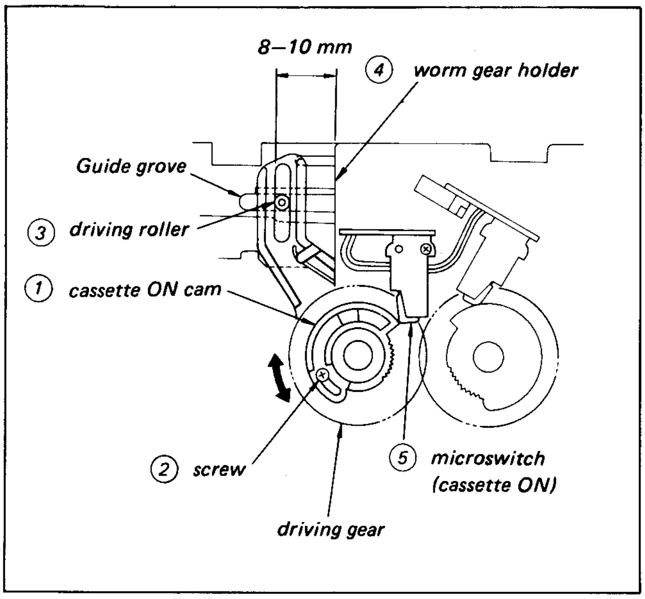

8–10 mm
④ worm gear holder
Guide grove
③ driving roller
① cassette ON cam
② screw
⑤ microswitch (cassette ON)
driving gear

Fig. 3-15. Cassette-ON Switch Operation Check and Adjustment

3-7-3. Adjustment of Cassette-OFF Switch

Loosen the screw ② which is fixing the cassette-OFF cam ①. Move the cassette-OFF cam in the arrow direction so that the microswitch (cassette off) ⑤ is turned off when the gap between the left end of the driving roller ③ and the end face of the worm gear holder ④ is 16 mm to 18 mm. Then fasten the screw ② .

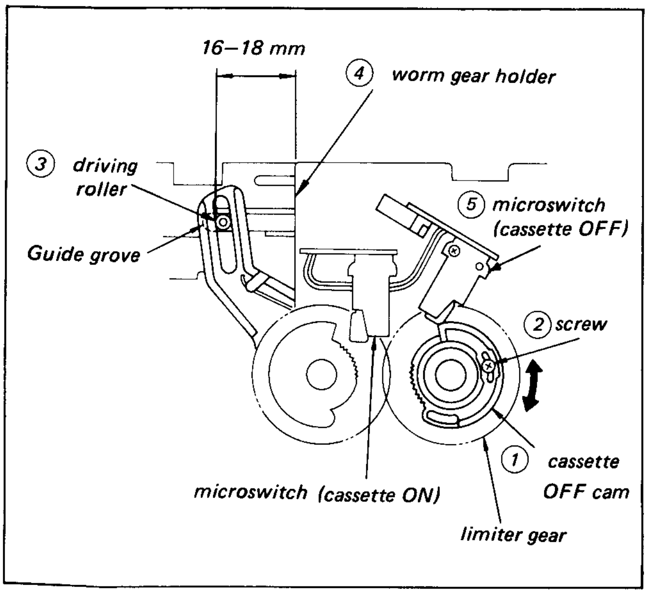

16–18 mm
④ worm gear holder
③ driving roller
Guide grove
⑤ microswitch (cassette OFF)
② screw
① cassette OFF cam
microswitch (cassette ON)
limiter gear

Fig. 3-16. Cassette-OFF Switch Operation Check and Adjustment

3-7-4. Check and Adjustment of Cassette Door Assembly

[Check Procedure]
Be certain that the upper door ② and lower door ③ become perpendicular when the switching door arm ① has fully returned in the direction of the arrow Ⓐ.

[Adjustment Procedure]
Check that the switching door rack plate ④ is fully returned, fit in the directions of arrows Ⓑ and Ⓒ so that the upper door ② and lower door ③ become perpendicular when the tips of the switching door rack plate ④ and side plate, right ⑤ mismatch by about 1 mm, then match the teeth. Fit the outer door holder ⑥ into the side plate, right ⑤ and secure the upper door ② and lower door ③ .

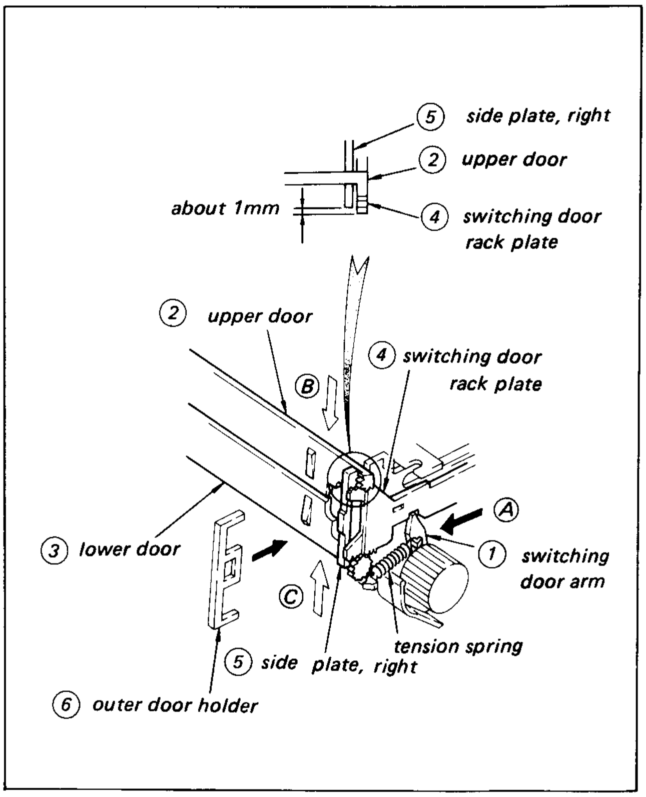
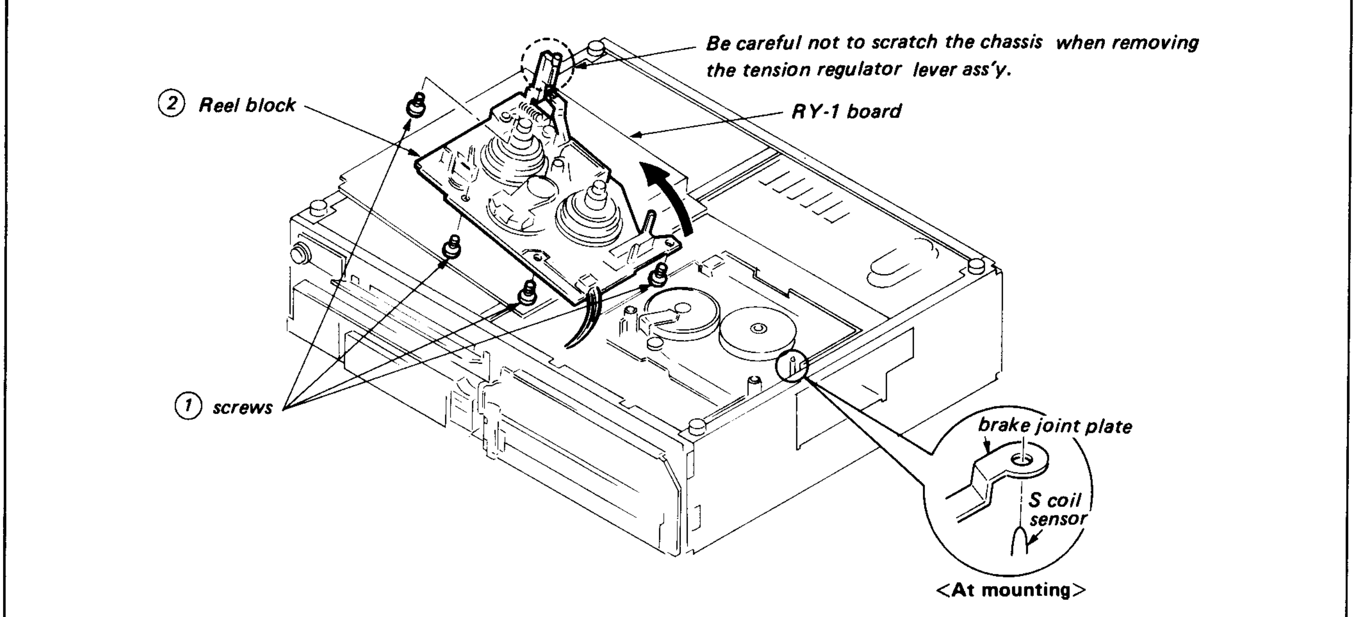

⑤ side plate, right
② upper door
about 1mm
④ switching door rack plate
② upper door
④ switching door rack plate
Ⓑ
Ⓐ
③ lower door
① switching door arm
Ⓒ
tension spring
⑤ side plate, right
⑥ outer door holder

Fig. 3-17. Position Adjustment of Cassette Door Assembly

3-8. REMOVAL OF REEL BLOCK

1) Remove four screws ①.
2) Remove the reel block ②.

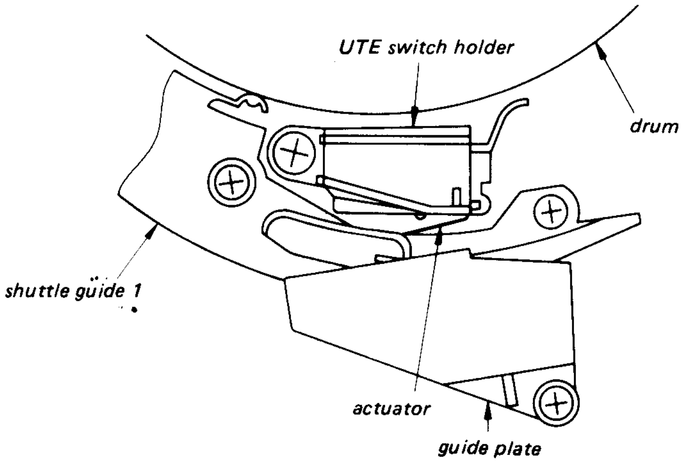


Be careful not to scratch the chassis when removing the tension regulator lever ass'y.
② Reel block
RY-1 board
① screws
brake joint plate
S coil sensor
<At mounting>

Fig. 3-19. Dismounting Reel Block

3-9. UNTHREADING CHECK

1) Press the EJECT button and unthread.
2) Check that the actuator for the unthreading end switch is not tripped as shown in Fig. 3-20. (Slowly rotate the internal gear by hand and verify by the click sound.)
   * Refer to Paragraph 1-7-2 to thread manually.
   Adjust according to Paragraph 3-15-2 if necessary.



UTE switch holder
drum
shuttle guide 1
actuator
guide plate

Fig. 3-20. UTE Switch

3-7-5. Position Matching of Right Worm Wheel of FL Cassette Compartment Assembly

In the FL cassette compartment assembly, the cassette holder feed rate is determined using a worm wheel system so that the cassette holder always moves parallel to the mechanism chassis. Therefore, cassette feeding cannot be performed properly unless the worm wheel gearing position is properly adjusted during subsequent assembly once gearing of this section has been moved from the normal position.

[Gear Positioning]

1) Prepare a rod about 1.5 mm thick and 200 mm long.
2) Pass the rod through the hole in the side plate, right and left (Perform on left and right sides.)
3) Insert the assembly comprising the driving arm, right ① and cassette-on cam ② on the positioning rod and assemble it on the right of the side plate, ③. Similarly assemble the driving arm, on the left of the side plate.
4) Insert the worm wheel ④ through the positioning rod as described in 3) above and assemble it on the right of the side plate ③.
5) Insert the assembly comprising the limiter gear ⑤ and cassette-off cam ⑥ on the positioning rod as in 3) and 4) above and assemble it on the right of the side plate ③.
6) After assembling, pull the rod out from the right side.

Note:
If a rod is not available, the holes can be lined up by eye.

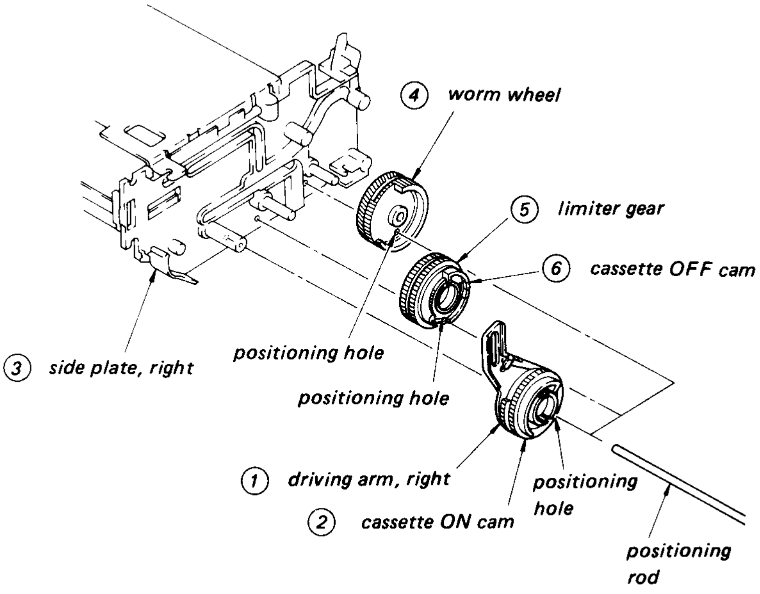

④ worm wheel
⑤ limiter gear
⑥ cassette OFF cam
③ side plate, right
positioning hole
positioning hole
① driving arm, right
② cassette ON cam
positioning hole
positioning rod

Fig. 3-18. Positioning of FL Cassette Compartment Worm Wheel

[Removal of Other Parts] (Fig. 3-22)

1) Measure the gap between the upper drum and the adjust plate as for replacement of the drum assembly. (Fig. 3-5)
2) Unscrew the two screws ① and remove the tape guide ground plate ② and adjust plate ③.
3) Unscrew the two screws ④ and remove the tape holder assembly ⑤
4) Unscrew screw ⑥ and remove the guide plate ⑦
5) Unscrew the two screws ⑧ and five screws ⑨ to remove the shuttle guide (1-YA) ⑩ and (2) ⑪ as well as the slant base assembly ⑫
6) Unscrew screw ⑬ and remove the pin link liner plate ⑭

Caution:

When the guide plate is removed, do not thread or unthread with the shuttle guide mounted.

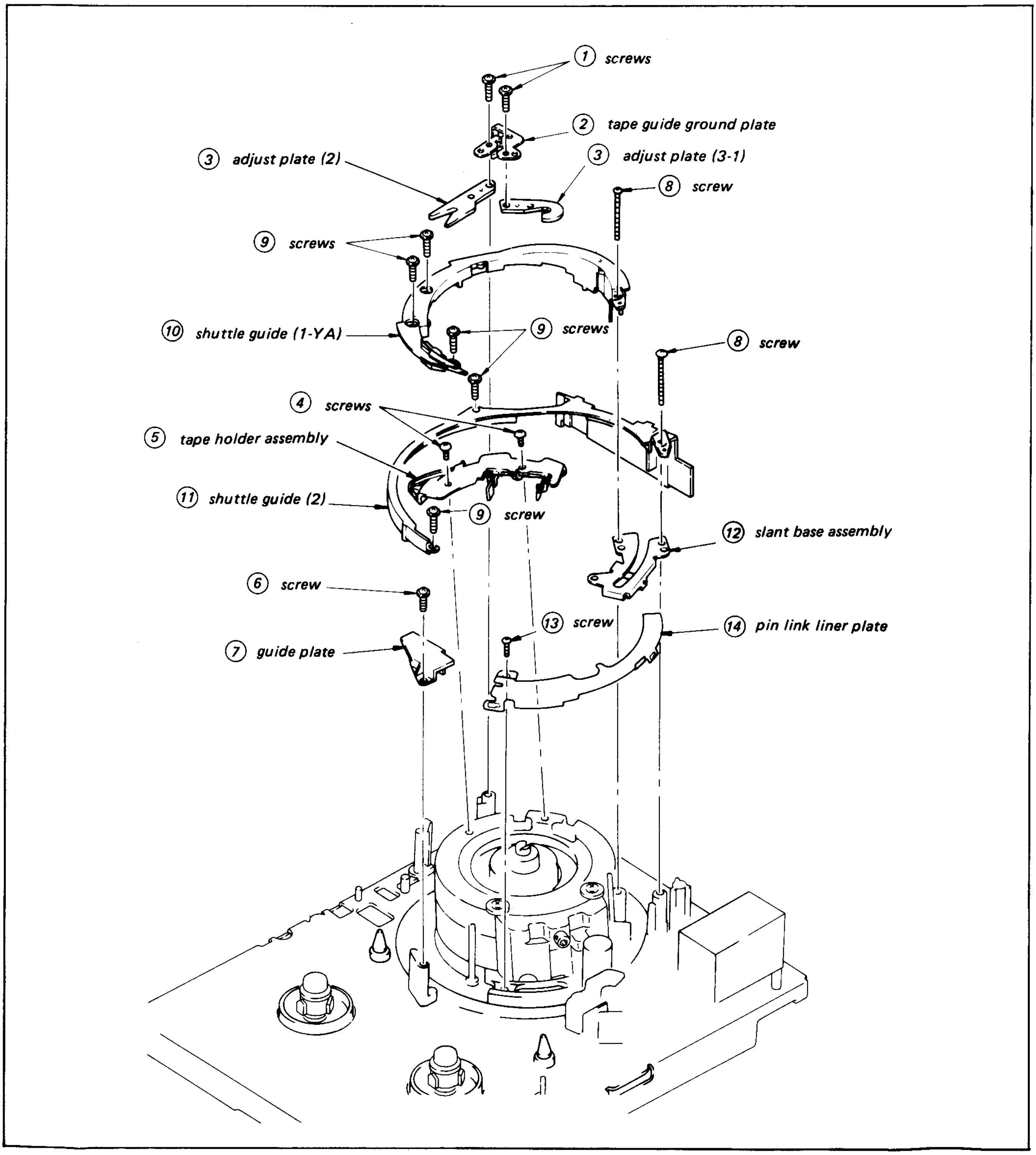

① screws
② tape guide ground plate
③ adjust plate (2)
③ adjust plate (3-1)
⑧ screw
⑨ screws
⑩ shuttle guide (1-YA)
⑨ screws
⑧ screw
④ screws
⑤ tape holder assembly
⑪ shuttle guide (2)
⑨ screw
⑫ slant base assembly
⑥ screw
⑬ screw
⑭ pin link liner plate
⑦ guide plate

Fig. 3-22. Removing Other Parts

3-10. S THREADING RING REPLACEMENT AND ADJUSTMENT

3-10-1. Preparation for Removal of S Threading Ring

Remove ACE assembly, FE Head and Threading Motor. (Fig. 3-21)

1) Unscrew the Phillips head continuous-thread stepped screw ①.
2) Remove the No. 6 guide nut ②, washer ③, spacer ④ and compression coil spring ⑤. Use a special notched screwdriver. (See Section 1-8. Tools and Fixtures Required)
3) Remove the two guide adjusting nuts ⑥ and the ACE assembly and FE head.

Caution:

ACE assembly and FE head are connected by a lead. Be careful when removing them. The compression coil spring underneath the ACE assembly does not haye to be removed. However, be careful not to lose it.

4) Unscrew two screws ⑦ and remove the STOPPER ARM ASSEMBLY BLOCK ⑧.
5) Unscrew the two screws ⑨ and pull the threading motor assembly up to remove.

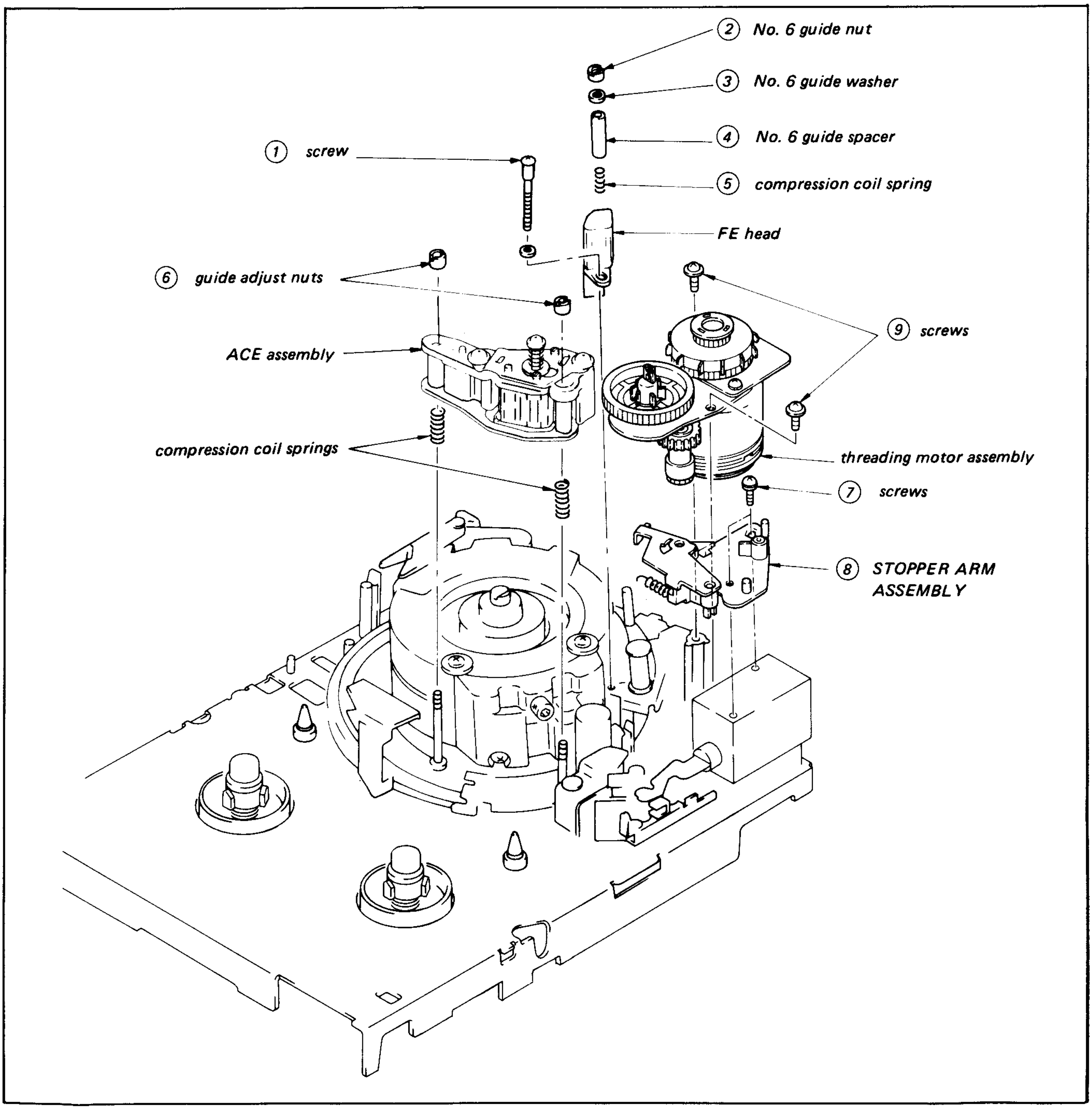
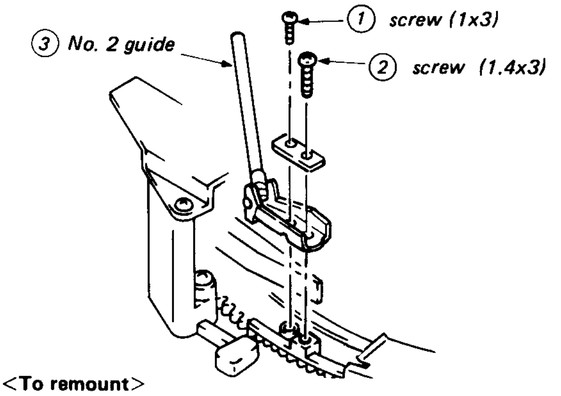

② No. 6 guide nut
③ No. 6 guide washer
④ No. 6 guide spacer
① screw
⑤ compression coil spring
FE head
⑥ guide adjust nuts
⑨ screws
ACE assembly
compression coil springs
threading motor assembly
⑦ screws
⑧ STOPPER ARM ASSEMBLY

Fig. 3-21. Dismounting ACE Assembly, FE Head, and Threading Motor

3-10-3. Removal of No. 2 Guide

1) Unscrew the screw (1×3) ①.
2) Unscrew the screw (1.4×3) ②.
3) Remove the No. 2 guide ③.


③ No. 2 guide
① screw (1x3)
② screw (1.4x3)

<To remount>

1) Loosely tighten the 1 x 3 tap-in screw.
2) Tighten the 1.4 x 3 tap-in screw all the way.
3) Adjust the 1 x 3 tap-in screw until the height is 35 mm.
After adjustment, lock the screw.
Note: The no. 2 guide is up all the way.

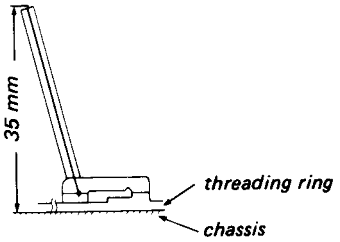
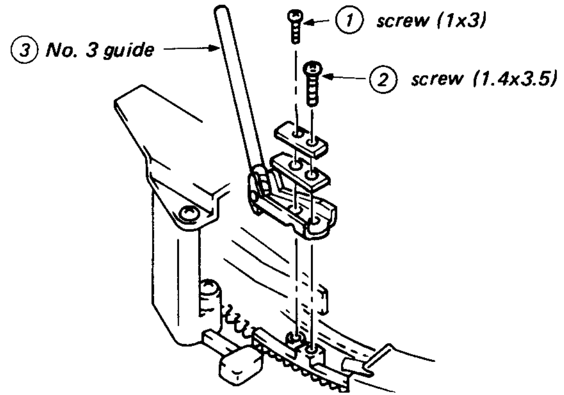

35 mm
threading ring
chassis

Fig. 3-24. Removal of No. 2 Guide

3-10-4. Removal of No. 3 Guide

1) Unscrew the screw (1×3) ①.
2) Unscrew the screw (1.4×3.5) ②.
3) Remove the No. 3 guide ③.


③ No. 3 guide
① screw (1x3)
② screw (1.4x3.5)

<To remount>

1) Loosely tighten the 1 x 3 tap-in screw.
2) Tighten the 1.4 x 3.5 tap-in screw all the way.
3) Adjust the 1 x 3 tap-in screw so that the height is 30 mm. After adjustment, lock the screw.
Note: The no. 3 guide is up all the way.

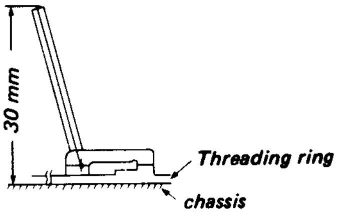

30 mm
Threading ring
chassis

Fig. 3-25. Removal of No. 3 Guide

3-10-2. Removal of S Threading Ring (Fig. 3-23)

1) Remove the spring of the lock arm assembly. (Refer to Paragraph 3-15-1, Fig. 3-34)
2) Remove stop washers ① and ring rollers ②, ③.
3) Remove the UTE switch subassembly. (Refer to Paragraph 3-15-2, Fig. 3-38)
4) Unscrew screw ④ and remove the ring roller adjustment plate ⑤ and ring roller ⑥.
5) Remove the S threading ring ⑦.

Caution:
Do not use the same washer twice.

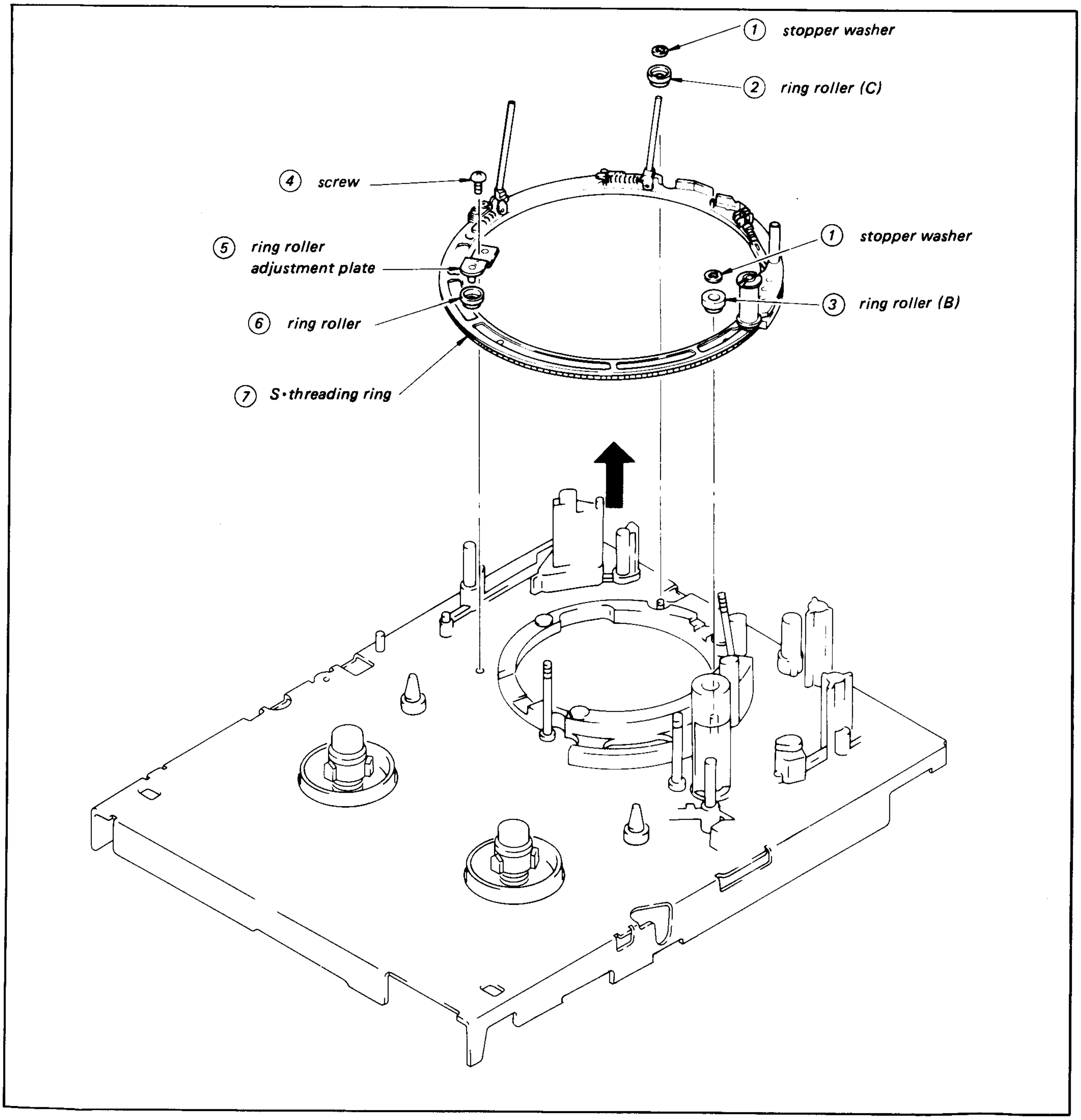

① stopper washer
② ring roller (C)
④ screw
① stopper washer
⑤ ring roller adjustment plate
③ ring roller (B)
⑥ ring roller
⑦ S•threading ring

Fig. 3-23. Removing S Threading Ring

3-10-5. Checking Slider Stopper Mounting (Fig. 3-26)

1) Check that the drive gear is engaged.
2) Loosen screw ①, insert a spacer (t = 0.2) between the slider gear and slider stopper, then tighten screw ① while pushing in the directions of arrows Ⓐ and Ⓑ

Caution:
Make sure to push it in direcition Ⓐ to eliminate any play. The slider stopper rotates in the direction of arrow Ⓒ when screw ① is tightened. Therefore, tighten the screw while holding it with a blade-tip screwdriver.

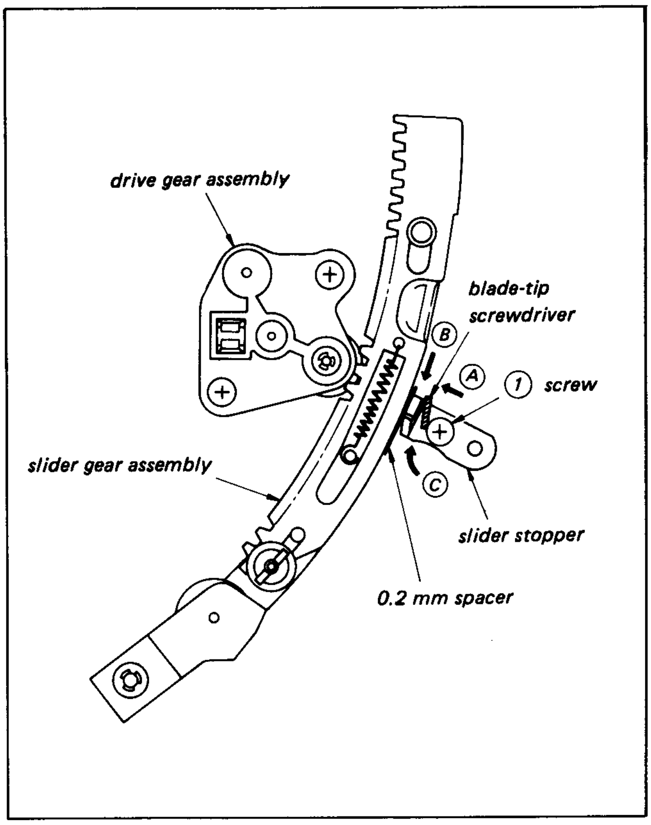

drive gear assembly
blade-tip screwdriver
Ⓑ
Ⓐ
① screw
slider gear assembly
Ⓒ
slider stopper
0.2 mm spacer

Fig. 3-26. Mounting Slider Stopper

3-10-6. Replacement of S Threading Ring (Fig. 3-27)

1) Mount the S threading ring.
2) Set the slider gear assembly in the unthreading complete position.
(Insert a 0.5 mm spacer between the slider stopper and slider gear as shown in Section Ⓐ .)
3) Rotate the S threading ring in the direction of the arrow ⓐ and align the mechanism chassis hole ($\phi3$) and S threading ring hole ($\phi1.5$) of the section Ⓑ .
4) Mesh the drive gear assembly with the S threading ring and fit them into the mechanism chassis.
5) Reassemble after repositioning the gearing of the drive gear assembly and S threading ring gear if the hole positions do not match.

Note:
Adjust the ACE assembly in accordance with Section 4 for tape path adjustment after changing and mounting the S threading ring.

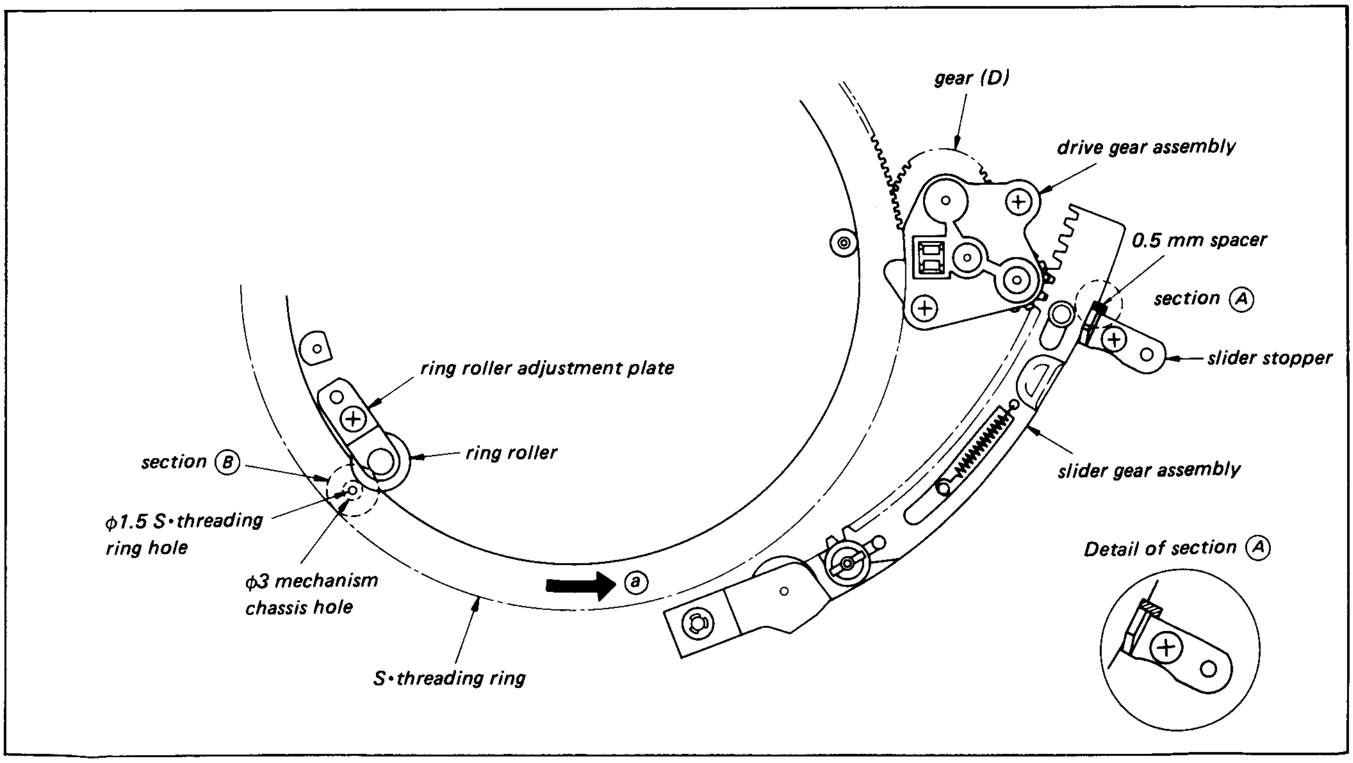

gear (D)
drive gear assembly
0.5 mm spacer
section Ⓐ
slider stopper
ring roller adjustment plate
ring roller
section Ⓑ
ϕ1.5 S·threading ring hole
ϕ3 mechanism chassis hole
ⓐ
S·threading ring
slider gear assembly
Detail of section Ⓐ

Fig. 3-27. S threading Ring Position Adjustment

3-11. CHECK AND ADJUSTMENT OF PINCH PRESS LIMITER CLEARANCE

[Check Procedure]

1) Set up a threading completed state.
2) Check that the clearance "t" of the pinch press limiter in Fig. 3-28 is 0.4 — 0.6 mm. If not, adjust as follows:

[Adjustment Procedure]

1) Loosen screw ① in Fig. 3-28 with the pinch solenoid held in.
2) Move the pinch limiter adjust plate (shaded in the diagram) fully in the direction of arrow ⓐ. The clearance "t" at this time is 0.
3) Push the pinch limiter adjust plate in the direction of arrow ⓑ as shown at section Ⓐ using a blade-tip screwdriver, until the clearance "t" is 0.4 — 0.6 mm.
   (Use ϕ0.4 and ϕ0.6 gauges for clearance adjustment)
4) Tighten screw ① and lock it.

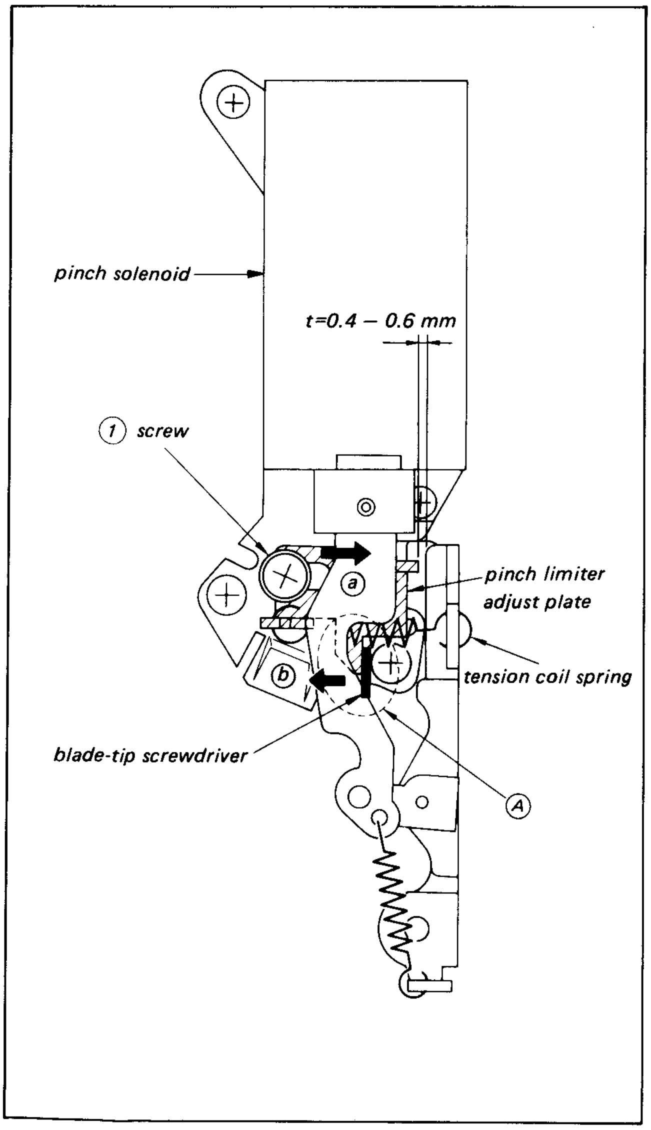

pinch solenoid
t=0.4 — 0.6 mm
① screw
ⓐ
pinch limiter adjust plate
tension coil spring
ⓑ
blade-tip screwdriver
Ⓐ

Fig. 3-28. Pinch Press Limiter Clearance Adjustment

3-12. BRAKE PLUNGER POSITION ADJUSTMENT

1) Loosen the screw ① securing the brake plunger.
2) Adjust the installation position so that the suction stroke of the brake plunger becomes 2 mm.
   When the plunger is in the sucked state, S brake should be separated from S reel table.

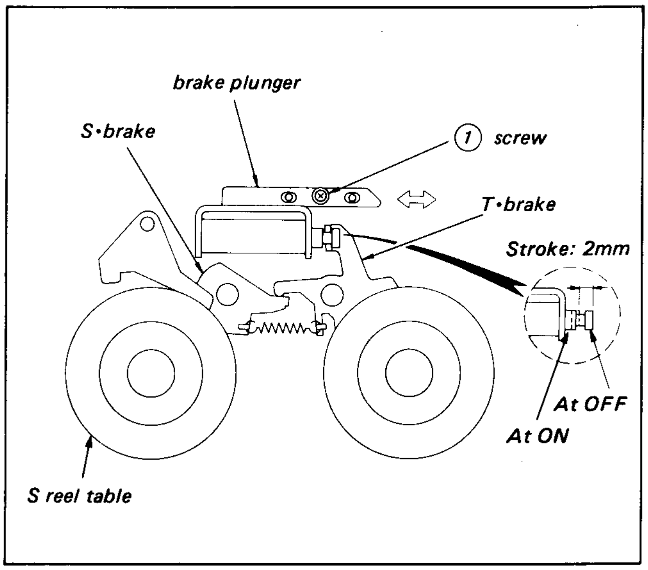

brake plunger
S•brake
① screw
T•brake
Stroke: 2mm
At OFF
At ON
S reel table

Fig. 3-29. Brake Plunger Position Adjustment

3-13. SOFT BRAKE ADJUSTMENT

[Adjustment Method]

1) Place a tension gauge (SL-0011) on the S reel base and hook a sector type gauge as shown in Fig. 3-30.
2) Adjust by moving the tension coil spring ① in the direction of the arrow Ⓐ until the sector type gauge reading is 8 g when the FF mode is set up. (See Fig. 3-31)

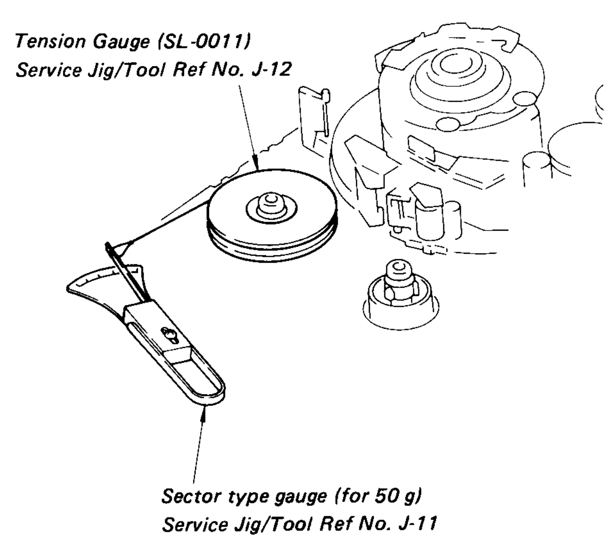

Tension Gauge (SL-0011)
Service Jig/Tool Ref No. J-12
Sector type gauge (for 50 g)
Service Jig/Tool Ref No. J-11

Fig. 3-30. Soft Brake Adjustment-1

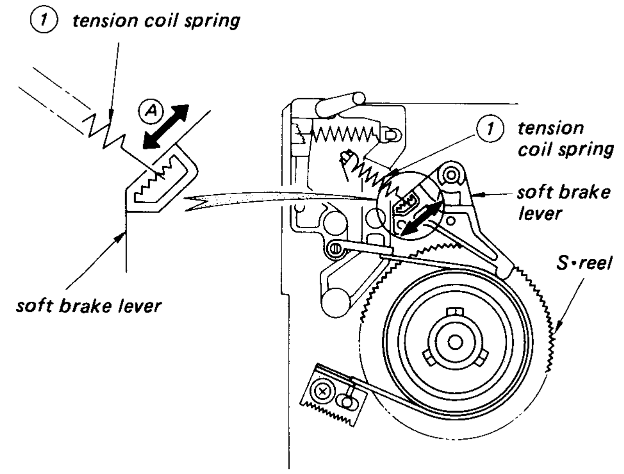

① tension coil spring
Ⓐ
soft brake lever
① tension coil spring
soft brake lever
S•reel

Fig. 3-31. Soft Brake Adjustment-2

3-14. TENSION REGULATOR LEVER POSITION ADJUSTMENT

[Adjustment Method]

1) Set up the PLAY Mode.
2) Loosen the screw ③ and adjust by moving the tension regulator band assembly ④ in the direction of the arrow Ⓐ until the tape guide pin (No. 1 guide) of the tension regulator lever assembly ① is positioned inside the outer circumference of the shuttle guide (2) ② as shown in Fig. 3-32.
3) After making the adjustment, tighten the screw ③ carefully in order not to move the tension regulator band assembly ④.

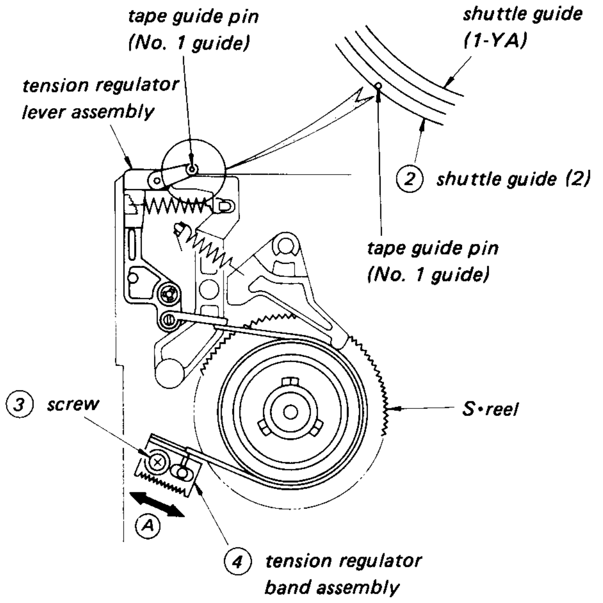

tape guide pin
(No. 1 guide)
shuttle guide
(1-YA)
tension regulator
lever assembly
② shuttle guide (2)
tape guide pin
(No. 1 guide)
③ screw
S•reel
Ⓐ
④ tension regulator
band assembly

Fig. 3-32. Tension Regulator Lever Position Adjustment

3-15. CHECK AND ADJUSTMENT OF MICROSWITCH POSITION

3-15-1. Check and Adjustment of Threading End Switch (TE Switch) Position

[Check Procedure] (Fig. 3-33)

Rotate the S threading ring by hand and check that the TE switch turns on and off with a clicking noise while the lock roller is moving within the upper 2/3 of the straight portion ℓ of the recess Ⓐ in Fig. 3-33 on the ring. If not, adjust as follows.

[Adjustment Procedure]

1) Adjust the lock roller to the position caving from the notch rim tip on the S threading ring, rotate the cam shaft using a blade-tip screwdriver in the direction of the arrow, and secure the cam shaft when the TE switch is turned on (a click tone is audible).
2) Check the results of the adjustment following the check procedure above.

[Removal] (Fig. 3-34)

1) Unhook the tension coil spring from the lock arm assembly.
2) Unscrew screw ① and remove the TE switch subassembly.
3) Push the hook on the main chassis assembly in the direction of the arrow to unhook, and remove the lock arm assembly.

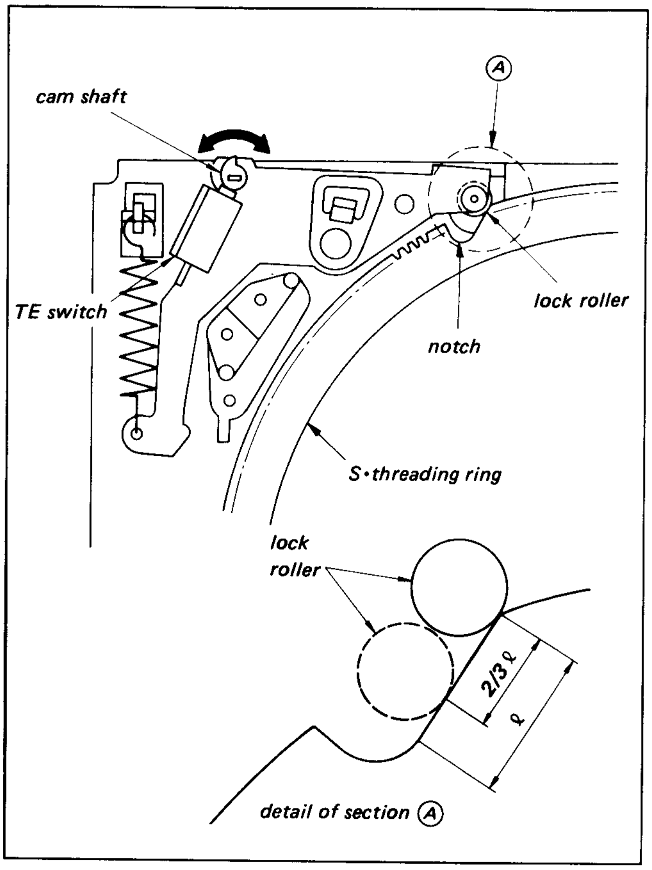

Ⓐ
cam shaft
TE switch
lock roller
notch
S•threading ring
lock roller
2/3ℓ
ℓ
detail of section Ⓐ

Fig. 3-33. TE Switch Position Adjustment

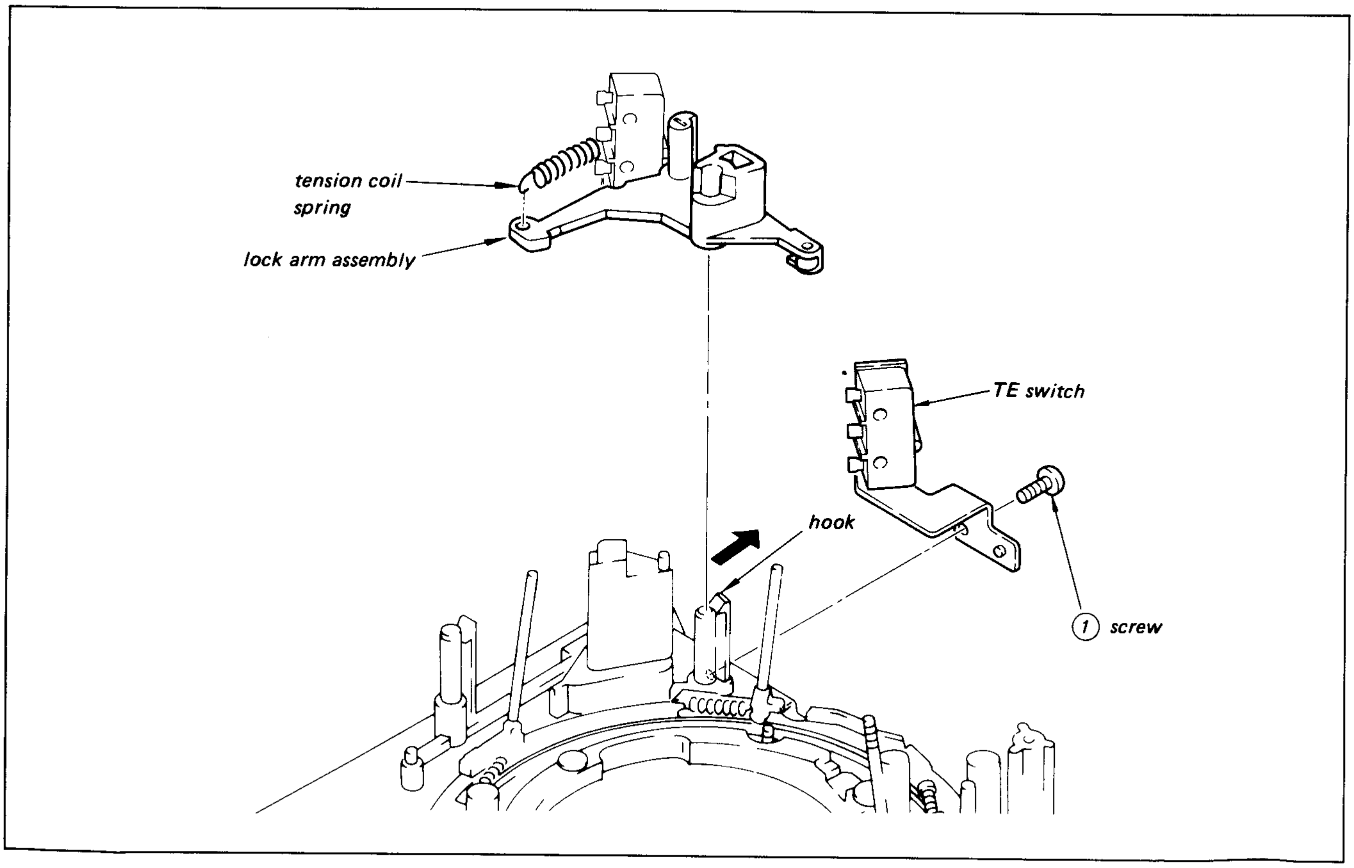

tension coil spring
lock arm assembly
TE switch
hook
① screw

Fig. 3-34. Removing TE Switch and Lock Arm Assembly

3-15-2. Check and Adjustment of Unthreading End Switch (UTE Switch) Position

[Check Procedure]

Rotate the S threading ring by hand. Verify that the switch trips when a pin of $\phi1.2$ is inserted at section Ⓐ in Fig. 3-35 after the UTE switch arm roller assembly has dripped into the UTE switch cam groove. Verify that the switch does not trip when a pin of $\phi0.6$ is inserted.

[Adjustment Procedure]

1) If the switch does not trip when the $\phi1.2$ pin is inserted, loosen small screw ① and adjust by moving in the direction of the arrow little by little.
2) The switch actuator is bent as shown in Fig. 3-36 when the switch turns on after inserting a $\phi0.6$ pin.
   Check the adjustment.

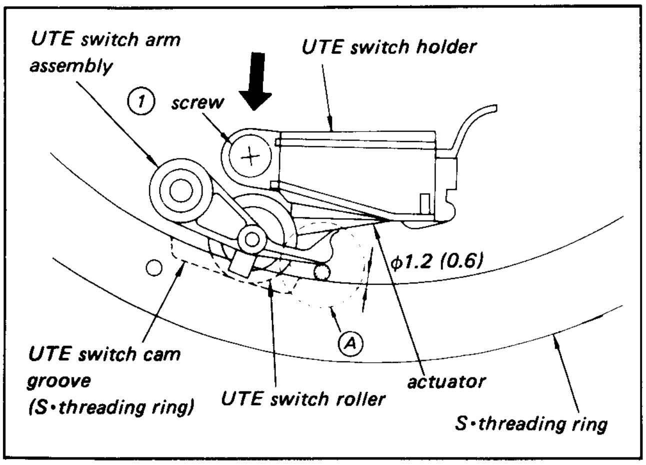

UTE switch arm assembly
① screw
UTE switch holder
$\phi1.2$ (0.6)
Ⓐ
UTE switch cam groove (S•threading ring)
UTE switch roller
actuator
S•threading ring

Fig. 3-35. UTE Switch Position Adjustment

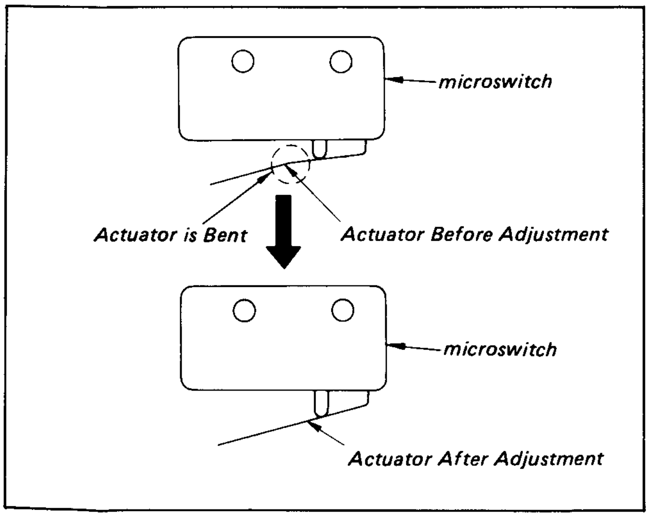

microswitch
Actuator is Bent
Actuator Before Adjustment
microswitch
Actuator After Adjustment

Fig. 3-36. Actuator Adjustment

Caution:

Insert the $\phi1.2$ and 0.6 pins into their correct positins as shown in Fig. 3-37. (Even when the clearance at the entrance is 1.2 mm on construction, depending on the pin insertion positions as shown in Fig. 3-37, the clearance inside is less than 1.2 mm).

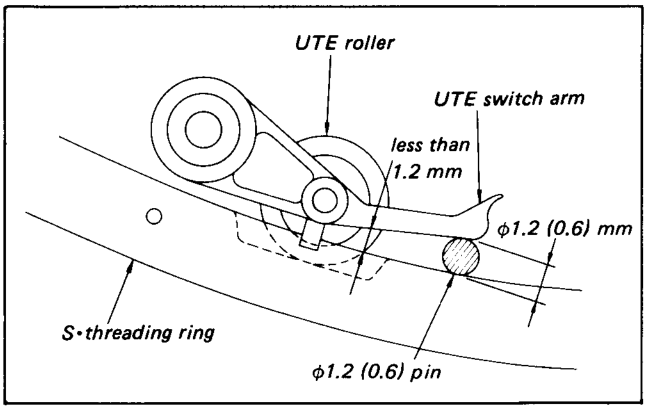

UTE roller
UTE switch arm
less than 1.2 mm
$\phi1.2$ (0.6) mm
S•threading ring
$\phi1.2$ (0.6) pin

Fig. 3-37. Pin Position During Checking

[Removal]

1) Unscrew screw ① as shown in Fig. 3-38.
2) Release the switch hook ② from the chassis and remove the switch body while pushing the actuator to the "ON" position.

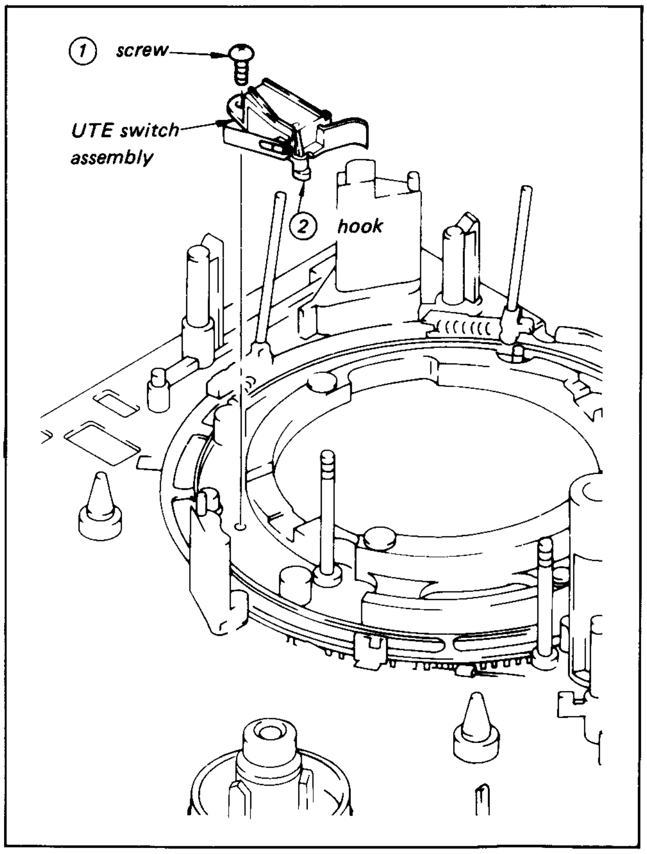

① screw
UTE switch assembly
② hook

Fig. 3-38. Removing UTE Switch

3-16. FORWARD/BACK TENSION MEASUREMENT

Perform this measurement using torque cassette SL-0003C according to the procedure below.

[Procedure]

1) Remove the upper panel so that the tape path is visible.
2) Insert the torque cassette and set PLAY mode.
3) Read the S reel side meter after the indicator has made about one revolution.
   Specified Value 30 ± 5 g • cm

Note:

i) Be sure the set is level when measuring.
ii) After measuring, the tape may go slack if the STOP button is pressed, so put the set into forward mode first, to remove the slack, then the tape can be ejected.

[Adjustment]

Adjust the position of the tension coil spring on the tension regulator lever assembly in the direction of the arrow Ⓐ so that measured values become 30 ± 5 g • cm to conform to the standard.

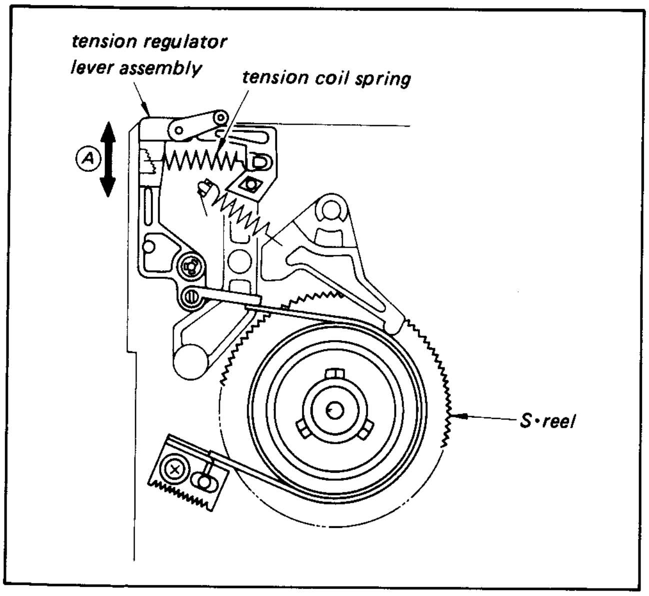


Fig. 3-39. Back Tension Measurement

3-17. FORWARD TORQUE ADJUSTMENT

Perform this measurement using torque cassette SL-0003C according to the procedure below.

[Procedure]

1) Insert the torque cassette and set RECORD mode.
2) Adjust RV309 of SS-16 board so that the reading of the take-up side becomes 80 ± 5 g • cm.

Note:

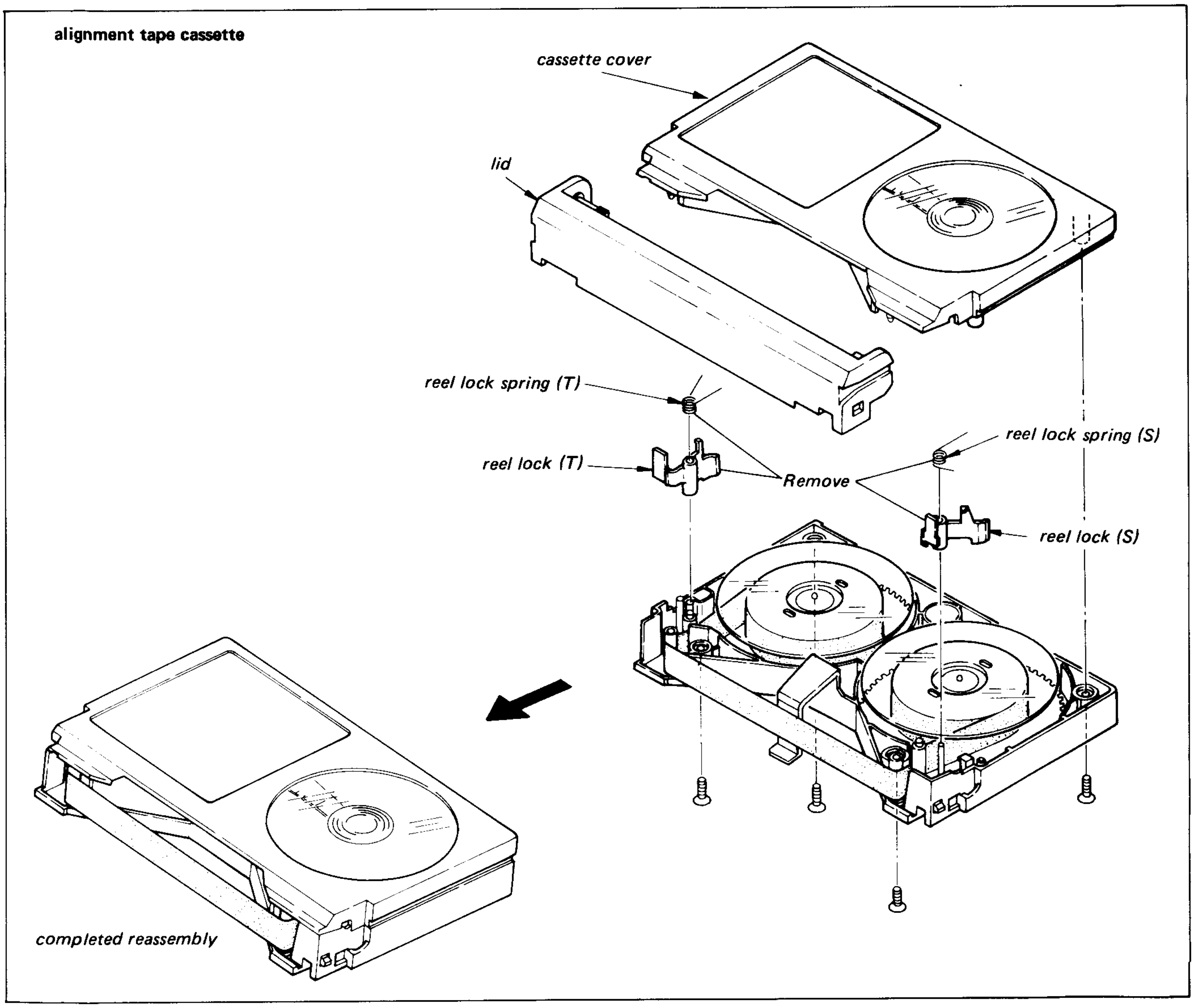
Upon RECORD mode, auto shutoff may occur, entering STOP mode. This is due to the construction of the torque cassette (the action of the built-in spring). The spring acts when the take-up reel table stops momentarily. In this case, either readjust by pushing the REC button, or adjust as follows.

1. Unplug connectors CN310 and 311 from SS-16 board.
2. Connect pin ㊴ of IC301 (TP-402) and pin ② of CN 310 with a 47 kohm resister.
3. Adjust.

SECTION 4
TAPE PATH ADJUSTMENT

4-1. TRACKING ADJUSTMENT

This adjustment has significant effect on picture quality in each mode and tape interchangeability, so please perform it very carefully.

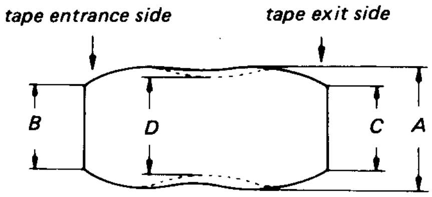


alignment tape cassette
cassette cover
lid
reel lock spring (T)
reel lock (T)
Remove
reel lock spring (S)
reel lock (S)
completed reassembly

Fig. 4-1. Cassette Holder Remodeling

4-1-1. Preparation

1) When modifying alignment tape KR5-2H, use caution not to dislodge the tape reels from their correct position. Refer to Fig. 4-1 and remove the four screws that secure the upper cover to the lower cover.
   Remove the upper cover and lid. Separate the lid and lid tension spring from the upper cover. Remove the two reel lock springs (T and S) and the two reel locks (T and S). Remount only the upper cover, being certain that it is properly mated with the lower cover. Secure the covers with four screws. NOTE — If the reel locks, and related springs are not removed from the cassette, the tape will load but will not thread. In this case the cassette will be ejected from the VCR approximately eight seconds after being loaded into the VCR.
2) Clean the tape contact surfaces (tape guides, drum, capstan shaft, pinch roller, ACE FE head surface) with chamois dampened with methanol.
3) Oscilloscope connections:
   1ch: CN2-5 pin (RY-1 board)
   2ch: CN2-3 pin (RY-1 board)
4) Play back the tracking portion of the modified KR5-2H alignment tape.
5) Confirm that the RF output waveform is flat, with maximum amplitude. (The waveform should increase and decrease, remaining flat, when the tracking control knob is turned back and forth.) Also, when the waveform is maximum, confirm that the RF output waveform variation and contact satisfy the specifications shown in Fig. 4-2. If they do not, follow the instructions in 6).
6) If the tracking control knob is turned and the entrance waveform does not flatten as shown in Fig. 4-3(a), perform the entrance side adjustment in 4-1-2. If the exit waveform does not flatten as shown in Fig. 4-3(b), perform the exit side adjustment in 4-1-3.


tape entrance side
tape exit side
B
D
C
A

Specifications: Tracking Control Knob at Maximum

contact: $\frac{B}{A} \geqq 0.7$

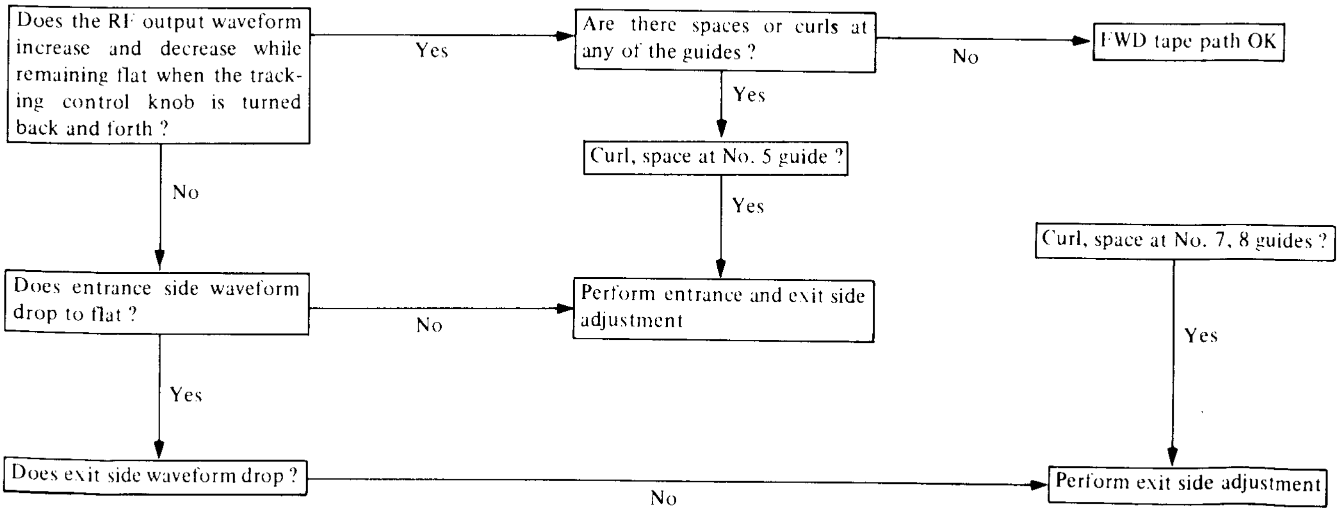
$\frac{C}{A} \geqq 0.7$

Variation: $\frac{D}{A} \geqq 0.9$

Fig. 4-2.

	BOARD	CONNECTOR & PIN NO.
RF Output Waveform	RY-1	CN2-5
External Trigger	RY-1	CN2-3
Audio Out	YC-25	AUDIO OUT CH1, CH2
Video Out	YC-25	VIDEO OUT

Waveform Confirmation


Does the RF output waveform increase and decrease while remaining flat when the tracking control knob is turned back and forth ?
Yes
Are there spaces or curls at any of the guides ?
No
FWD tape path OK
Yes
Curl, space at No. 5 guide ?
Yes
No
Curl, space at No. 7, 8 guides ?
Does entrance side waveform drop to flat ?
No
Perform entrance and exit side adjustment
Yes
Yes
Does exit side waveform drop ?
No
Perform exit side adjustment

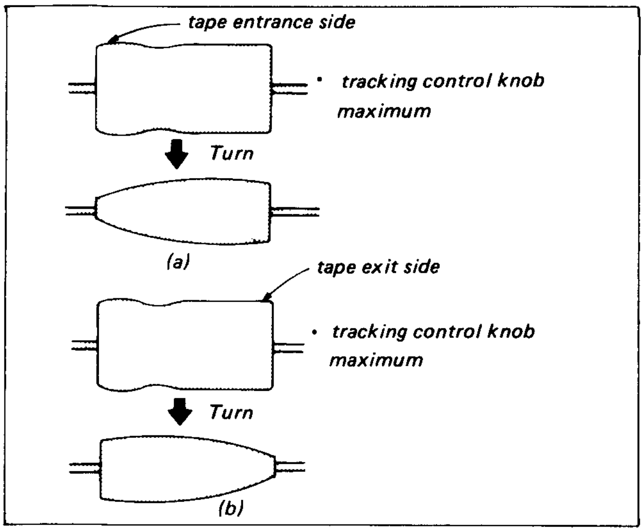

tape entrance side
• tracking control knob maximum
Turn
(a)
tape exit side
• tracking control knob maximum
Turn
(b)

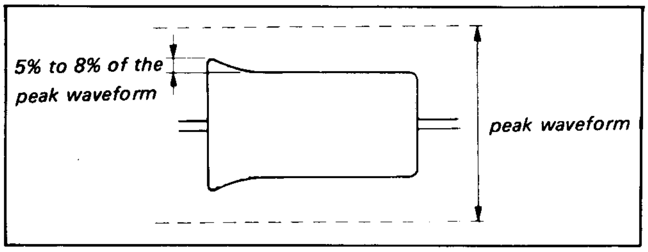
Fig. 4-3.

Note: After the indicated tape path adjustments that follow have been successfully completed using normal playback speed, operate the VCR in the Speed Search mode and look for curl at the tape guides. Readjust them if necessary. Then, finally, playback a regulator L830 tape as a check-up. See Section 4-4.

4-1-2. Entrance Side Adjustment

Always perform the exit side adjustment as well as the entrance side adjustment. Fig. 4-4 illustrates the guides and adjustment locations.

1) Turn tracking control knob counterclockwise to drop RF output waveform to about 60% of maximum.
2) Turn No. 6 guide counterclockwise to free tape transportation to the drum. Use a special notched screwdriver. (See Section 1-8, Tools And Fixtures Required)
3) Loosen No. 5 guide lock screw ①, turn No. 5 guide so that the entrance side waveform is almost flat, as shown in the figure below, and tighten lock screw ①. (See Fig. 4-5)

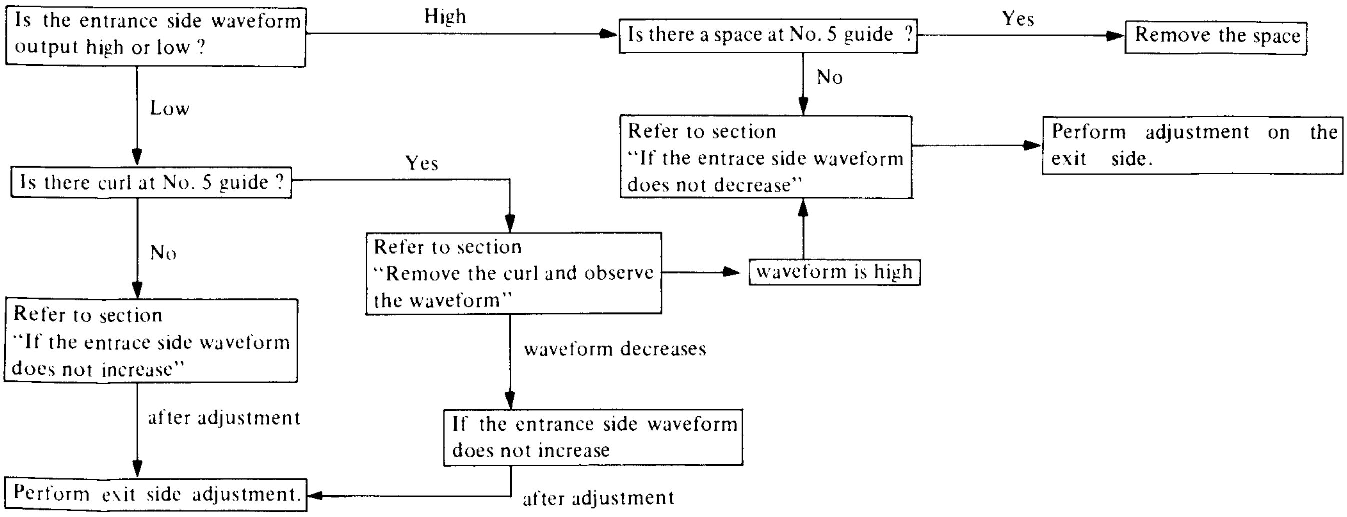

5% to 8% of the peak waveform
peak waveform

Note:
Be sure that the waveform remains as shown in the figure after tightening the lock screw ①.

4) Next lower No. 6 guide and flatten the waveform.
5) Push the tape down between No. 4 and No. 5 guides by hand, and confirm that the entrance side RF waveform returns to the original state after being lowered. If the waveform is not as illustrated, or if the waveform does not flatten, or takes too much time to flatten after the entrance side tape is pushed down, follow the procedure below to adjust.
6) Check No. 5 guide for space and curl. If space or curl exists, follow the appropriate adjustment procedure.

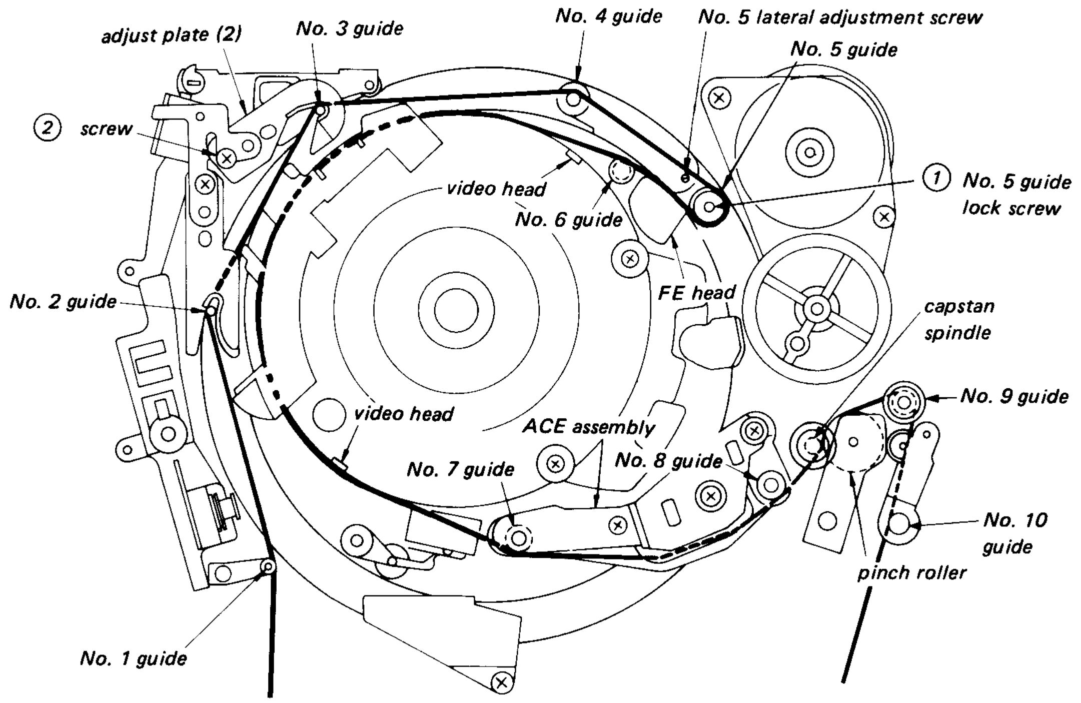
Note:
Be sure that there is tape tension upper and lower balance between No. 3 — No. 4 — No. 5 guides. Perform No. 3 or No. 5 guide lateral adjustment if necessary.

Entrance Side Flow Chart


Is the entrance side waveform output high or low ?
High
Is there a space at No. 5 guide ?
Yes
Remove the space
No
Refer to section "If the entrace side waveform does not decrease"
Perform adjustment on the exit side.
Low
Is there curl at No. 5 guide ?
Yes
Refer to section "Remove the curl and observe the waveform"
waveform is high
No
Refer to section "If the entrace side waveform does not increase"
waveform decreases
after adjustment
If the entrance side waveform does not increase
Perform exit side adjustment.
after adjustment

Note:

Upon failing to obtain the waveforms shown above, press down the tape at the entrance side, adjust as indicated below when a long time is needed for the waveform to return to the horizontal, or when it does not return at all.



adjust plate (2)
No. 3 guide
No. 4 guide
No. 5 lateral adjustment screw
No. 5 guide
② screw
① No. 5 guide lock screw
video head
No. 6 guide
FE head
capstan spindle
No. 2 guide
No. 9 guide
video head
ACE assembly
No. 7 guide
No. 8 guide
No. 10 guide
pinch roller
No. 1 guide

Fig. 4-4. Tape Guide Layout

[If the waveform entrance output does not increase]

1) Check to make sure tape upper and lower tension is equal between No. 3 — No. 4 — No. 5 guides. If it is not, perform No. 3 or No. 5 guide lateral adjustment.

   Note:
   Be sure there is no space at No. 4 guide lower flange.

2) Raise No. 4 guide lower flange to raise entrance output.

   Note:
   No. 4 guide lower flange may be raised 0.4 mm from its lowest position.

3) If the waveform does not increase in step 2), turn No. 5 lateral adjustment screw slightly (less then 360°) counter-clockwise.

[If the waveform entrance output does not decrease]

1) Move the No. 3 guide adjust plate away from the drum, and tighten screw ② at the point just before the lower tension of the tape loosens.
2) If the tape is touching No. 4 guide lower flange, lower the flange. If it is floating, adjust No. 5 guide laterally.

[If there is space at No. 5 guide]

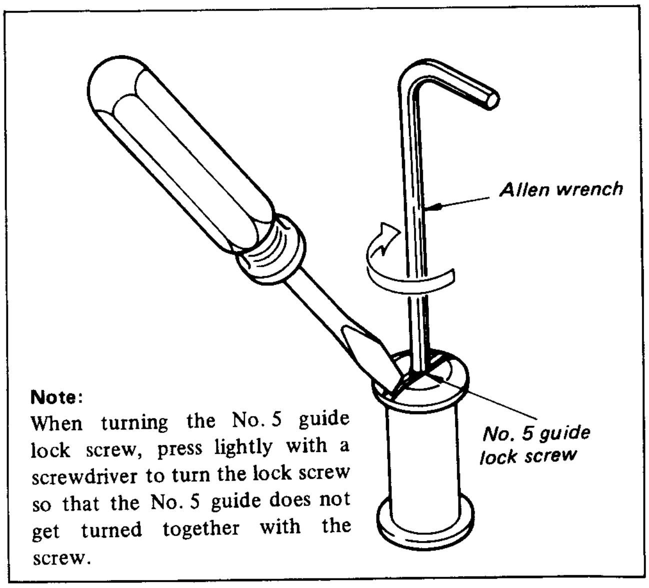
Turn No. 4 guide conterclockwise to raise the tape and remove the space at No. 5 guide.

Note:

Be careful not to create a large space at the bottom of No. 4 guide.

[If there is curl]

1) When there is a space at the bottom of No. 4 guide: Lean the adjust plate of No. 3 guide toward the outside until the point just before the lower tape tension loosens.
2) When there is curl but no space at the bottom of No. 4 guide:
   i) Confirm that No. 4 guide is not raised too high. Turn clockwise to lower if necessary.
   ii) If this does not slove the problem, tighten No. 5 guide lateral adjustment screw by turning clockwise until the curl disappears.



Note:
When turning the No. 5 guide lock screw, press lightly with a screwdriver to turn the lock screw so that the No. 5 guide does not get turned together with the screw.

Fig. 4-5.

4-1-3. Exit Side Adjustment

1) Turn the tracking control knob counterclockwise to lower the RF output waveform to about 60% of the maximum.
2) Raise No. 7, 8 guides to free the tape transportation, and check the waveform. (This waveform is called "exit free waveform".)

Note:
Be careful not to raise the guides too much. They should be raised about 0.3 mm, and also, the tape should not touch the ACE head bottom flange. (Fig. 4-6)

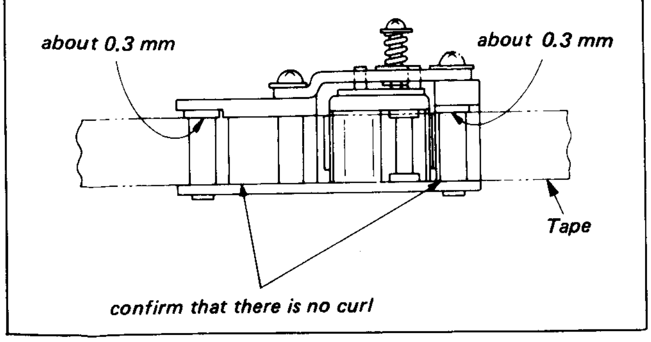


Fig. 4-6.

   i) If the exit free waveform is within the range illustrated in Fig. 4-7(a), (b), proceed with exit side adjustment.
   ii) If it is not within the specified range, follow the adjustment procedure in 4-3.

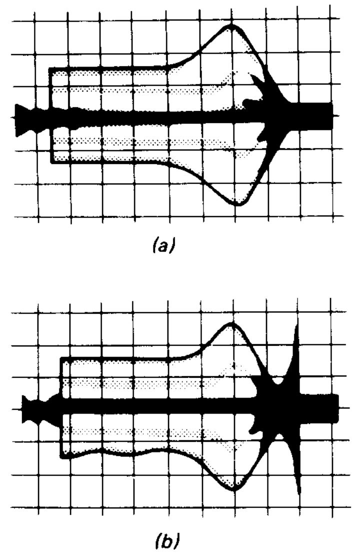


Fig. 4-7.

3) Flatten the waveform with No. 7 guide, and match No. 8 guide to the tape. (Lower the guide to the point just before the waveform changes, and where there is no curl.) At this time, the exit side waveform may rise slightly, so lower No. 7 guide again to flatten it, and match No. 8 guide to the tape.
4) Confirm that there is no curl at No. 7, 8 guides in forward mode.
5) Confrim that curl and space do not appear at No. 8 guide in reverse mode. If curl or space appears, adjust with No. 9 guide.

4-2. ADJUSTMENT AFTER REPLACEMENT OF THE ACE ASSEMBLY

Perform the following adjustments after removing or replacing the ACE assembly.

4-2-1. Tracking Adjustment

1) Position the parallel plate (Fixture, SL-0657) at shown in Fig. 4-8, and turn audio head lateral adjustment screw ① to adjust the audio head vertically.

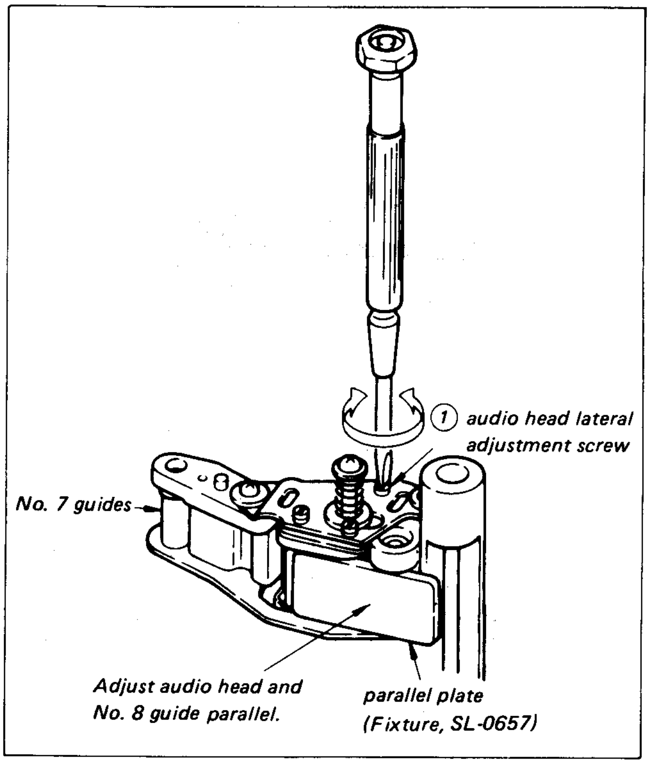

① audio head lateral adjustment screw
No. 7 guides
Adjust audio head and No. 8 guide parallel.
parallel plate (Fixture, SL-0657)

Fig. 4-8.

2) Turn the tracking control knob counterclockwise to lower the RF output waveform to about 60% of the maximum.
3) Play back the tracking portion of the alignment tape KR5-2H raise No. 7, 8 guides about 0.3 mm and check the exit free waveform of the RF output waveform.

   Note:
   Be sure that the tape does not touch the bottom flange of the ACE assembly.

   i) If the waveform is within the range illustrated in Fig. 4-7(a), (b), proceed with the adjustment.
   ii) If the exit free waveform appears as shown in Fig. 4-9, turn the ACE lateral adjustment screw clockwise until the waveform is within the range illustrated in Fig. 4-7(a), (b).
   iii) If the exit free waveform appears as shown in Fig. 4-10, turn the ACE lateral adjustment screw counterclockwise to obtain the waveform shown in Fig. 4-9, then turn clockwise again until the waveform is within the range shown in Fig. 4-7.

4) Turn the No. 7 guide to flatten the waveform, and match the No. 8 guide to the tape. (Lower the guide until the point just before curl appears at No. 8 guide flange.)
5) If the RF output waveform is as shown in Fig. 4-9, where the exit side is not flat, lower No. 7, No. 8 guides again to flatten it.

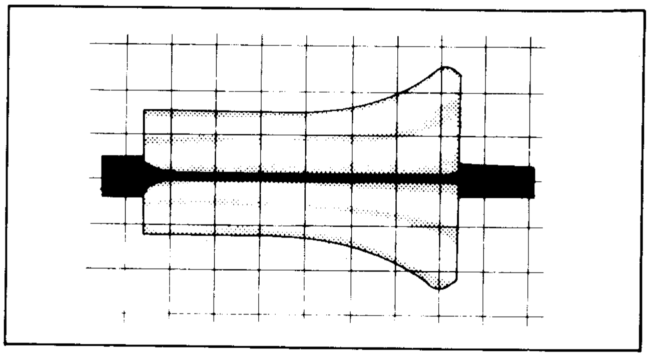


Fig. 4-9.

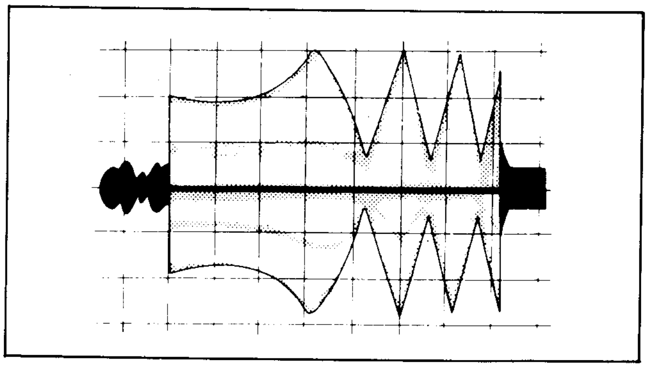


Fig. 4-10.

4-2-2. Audio head (ACE assembly) azimuth adjustment

Audio head azimuth affects phase differnce of the right and left channels in stereo. Since the track width is one third of monaural, azimuth loss is small when azimuth error is the same. Therefore, only phase adjustment of the two channels is to be performed as azimuth adjustment.

Mode: playback
Signal: alignment tape, color bars, 3 kHz
Oscilloscope: CH-1 AUDIO OUT CH1/L terminal
CH-2 AUDIO OUT CH2/R terminal

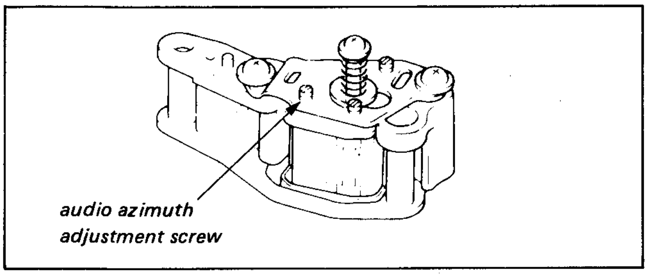
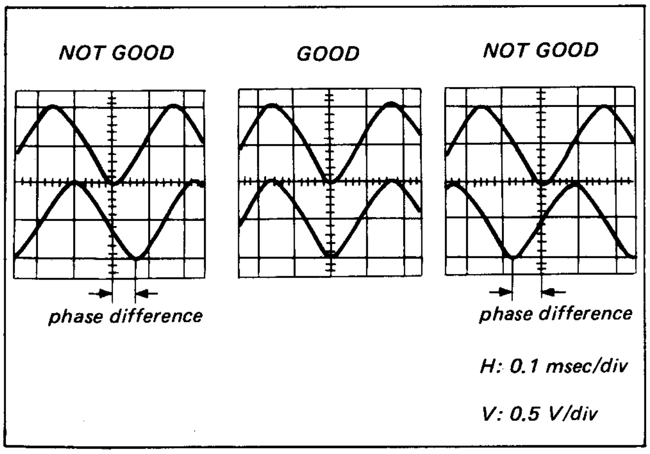

audio azimuth
adjustment screw

Fig. 4-11.

[Adjustment procedures]

1. In dual-beam mode

1) Zero the phase differnce of CH-1 and CH-2 signals with the azimuth adjusting screw.


NOT GOOD
GOOD
NOT GOOD
phase difference
phase difference
H: 0.1 msec/div
V: 0.5 V/div

2) Requirement on phase differnce angle: less than 45°

2. In X-Y mode with Lissajous' figures

1) Zero the phase difference of CH-1 and CH-2 signals with the azimuth adjusting screw.

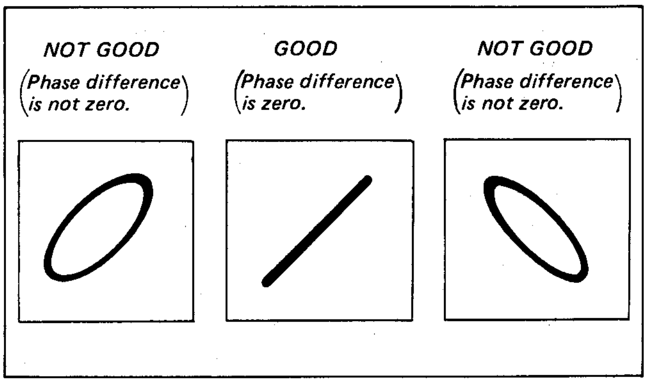

NOT GOOD
(Phase difference is not zero.)
GOOD
(Phase difference is zero.)
NOT GOOD
(Phase difference is not zero.)

Fig. 4-12.

2) Requirement on phase difference angle: less than 45°

The angle of phase difference is given by $\sin^{-1}$ (B/A). To meet that the angle of phase difference be less than 45°, it is sufficient that B/A < 0.7.

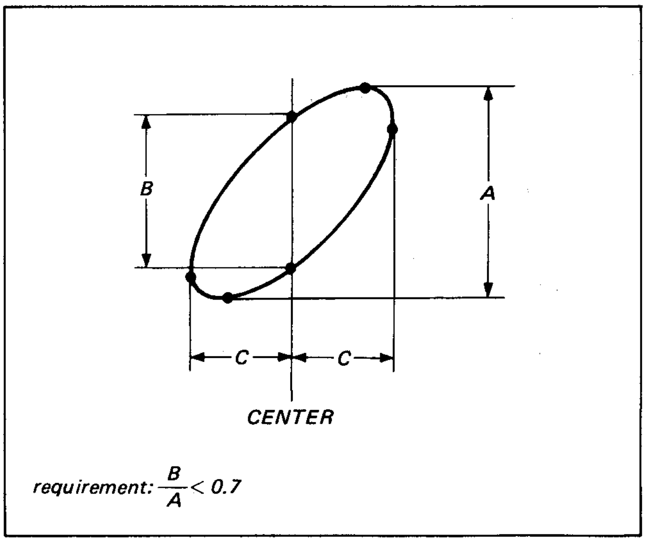

B
A
C
C
CENTER
requirement: $\frac{B}{A} < 0.7$

Fig. 4-13.

4-2-3. CTL Head (ACE Assembly) Position Adjustment

This adjustment is both mechanical and electric: mechanically, it is the adjustment of the CTL head position, and electrically, it is the tracking control center adjustment. The procedure involves performing the electrical adjustment first, then the head position adjustment.

1) Connect the oscilloscope as follows:
   1ch: CN2 ...... 5 pin (RY-1 board)
   2ch: AUDIO OUT CH1 or CH2 (YC-25 board)
   External trigger: CN2 ...... 3 pin (RY-1 board)
2) Play back the tracking portion of the alignment tape.
3) Turn the tracking control knob back and forth, and confirm that the output waveform level is maximum at the center click position, and that the 0 level of the audio signal is at the point where the RF output waveform Bch waveform appears, as shown in Fig. 4-14.
   If adjustment is necessary, proceed as follows.

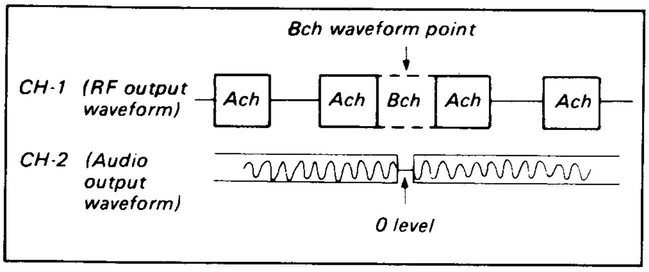


Fig. 4-14.

4) Tracking Control Center Adjustment
5) CTL Head Position Adjustment
   Set the tracking control knob at the center detent position and loosen the two ACE assembly position adjustment screws ①. As shown in Fig. 4-15 slide the ACE assembly with a screwdriver until it is in the position shown in Fig. 4-14 and the RF output waveform is maximum. Tighten the screws ① when this position is obtained.
6) Replay the color bars of the alignment tape and check the picture quality.

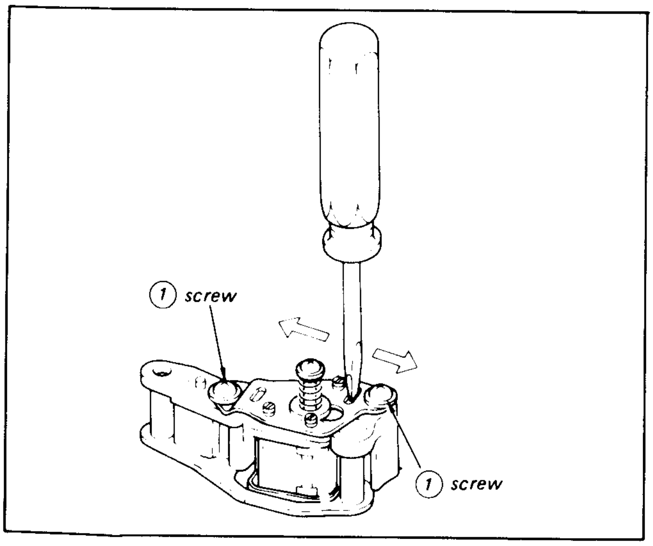


Fig. 4-15.

4-2-4. Height Adjustment of Audio Head (In ACE Assembly)

- The core is placed in position with respect to the tape guide flange while the ACE assembly is being built. Height adjustment is thus unnecessary during replacement except that the difference in signal levels between 2 channels is so remarkable that the difference cannot be corrected by adjusting the circuit parameters.
- Set the BNR switch at OFF and then start adjustment.

1) Perform the exit side tracking adjustment.
2) Perform azimuth adjustment for the audio head (ACE assembly).
3) Mark the currently set positions for the audio-head height adjusting screw and the lateral adjusting screw shown in Fig. 4-16, and the azimuth adjusting screw shown in Fig. 4-11.

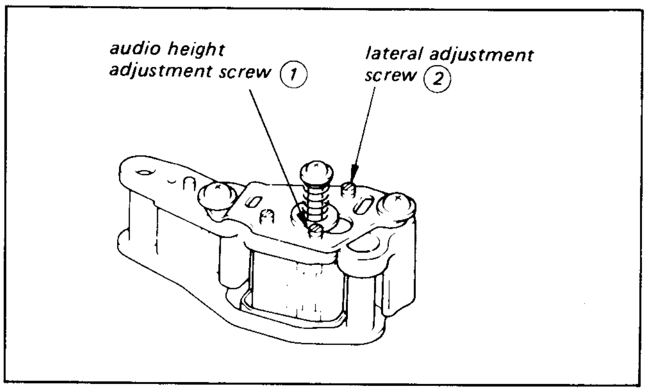


Fig. 4-16.

4) Turn both the audio-head height adjusting screw and lateral adjusting screw at right angle counterclockwise.

   Note:
   Turn them in excess of the right angle counterclockwise and return them at right angle.
5) Turn the azimuth adjusting screw at right angle counterclockwise.
6) Set the output signal in channel 1 (AUDIO OUT CH1 on the YC-25 board) at −30 dB by adjusting RV501 (PB LEVEL CH1) on the AM-4 board, playing back the 333 Hz section of alignment tape KR5-2H.
7) Turn both the audio-head height adjusting screw and head tilt adjusting screw at 180 degrees clockwise (which are turned by 90 degrees from the marked position clockwise). Turn the azimuth adjusting screw at 180 degrees counterclockwise (which is turned by 90 degrees from the marked position counterclockwise).

   Note:
   Loosen the screws in accordance with the procedure of item 4).
8) Set the output signal in channel 2 (AUDIO OUT CH2 on the YC-25 board) at −30 dB by adjusting RV601 (PB LEVEL CH2) on the AM-4 board, playing back the 333 Hz section of alignment tape KR5-2H.

9) Return the screws at the marks for 3 types of screws.
10) Perform azimuth adjustment of the audio head (in the ACE assembly).
11) Confirm that the difference in signal levels between 2 channels is 2 dB or less, playing back the tracking section of alignment tape KR5-2H.
    If the difference in signal levels between 2 channels is greater than 2 dB, perform adjustment in accordance with the following procedures.
    i) When the signal level in channel 2 is greater than that in channel 1;
       Turn the audio-head height adjusting screw, lateral adjusting screw, and azimuth adjusting screw by the same angle counterclockwise until the difference in signal levels becomes 1.5 dB or less.

       Note:
       Turn the respective screws at 30 degrees and check if the difference in signal levels becomes 1.5 dB or less. If the difference in signal levels approaches 1.5 dB, perform fine adjustment by turning the screws clockwise. Do not turn the screws counterclockwise when the screws are finally set during fine adjustment.
    ii) When the signal level in channel 2 is smaller than that in channel 1;
       Perform adjustment in the same way as step i), except that the screws are to be turned in the reverse direction to step i).
    iii) Perform azimuth adjustment of the audio-head (ACE assembly) after completion of step i) or ii).

4-3. ADJUSTMENT AFTER REPLACEMENT OF THE CAPSTAN MOTOR

1) Perform the vertical adjustment of the capstan shaft according to 3-4. Replacement and Adjustment of Capstan Motor.
2) Play back the tracking portion of the alignment tape.
   Connect the oscilloscope as follows:
   1ch: CN2 ...... 5 pin (RY-1 board)
   2ch: CN2 ...... 3 pin (RY-1 board)
3) Turn the tracking control knob clockwise to lower the RF output waveform to about 60% of the maximum.
4) Raise No. 7, 8 guides a little, and check the exit free waveform.
   i) If the exit free waveform is within the range indicated in Fig. 4-17(a), (b), proceed from step 5).

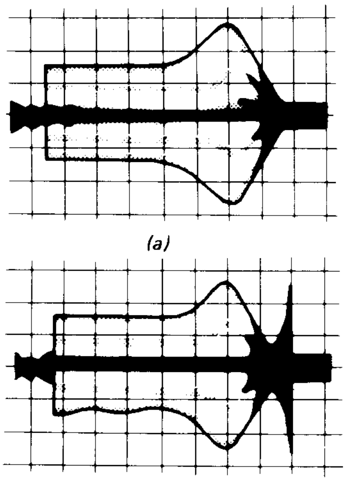


Fig. 4-17.

   ii) If the peak of the exit free waveform is smaller than that illustrated in Fig. 4-17(a) (e.g. Fig. 4-18), loosen the lock screw, then turn the capstan adjustment screw until the waveform is within the specified range.

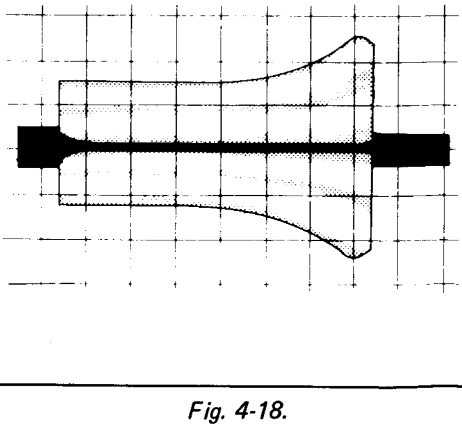


Fig. 4-18.

iii) If the peak shape of the exit free waveform differs from that shown in Fig. 4-17(b) (e.g. Fig. 4-19), loosen the lock screw, then turn the capstan adjustment screw clockwise until the waveform is within the specified range.

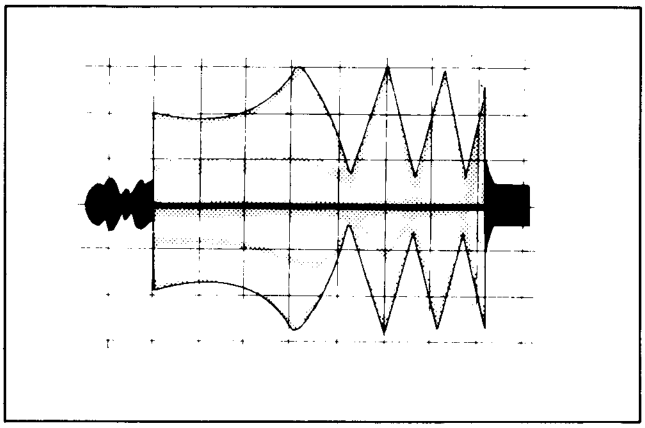


Fig. 4-19.

Note:
After turning the capstan adjustment screw, wait until the waveform stabilizes (about 10 — 15 seconds) before continuing with the adjustment.

5) Lock the capstan lock screw. (Turn clockwise until is stops, then turn about 30° more. At this point, the exit free waveform will change slightly, and if it goes out of the range shown in Fig. 4-17(a), (b) return to step 4) and re-adjust.
6) Flatten the waveform with No. 7 guide, and match No. 8 guide to the tape. If the exit waveform rises, flatten it again with No. 7 guide and match No. 8 guide to the tape again.
7) Confirm and adjust according to 4-1-3, exit side adjustment procedure items 4), 5).

Note:
Check with L830 tape.

4-4. THIN TAPE MOVEMENT CHECK METHOD DURING TAPE PATH ADJUSTMENT

After confirming the tape path by using the procedures of section 4-1 through 4-3, check the thin tape movement by the procedure given below.

1) Prepare one reel of the commercial L-830. Remove the cassette lid with reference to Fig. 4-1.

2) Run L-830 prepared in the procedure 1 in the PLAY mode and check the following points;

i) Entrance Side
Check if the tape bends and is damaged on the No. 4 guide bottom flange, the No. 5 guide top flange and the No. 6 guide top flange. (The curl of the tape is allowed), but the bend of the tape is not allowed.) (Fig. 4-20)

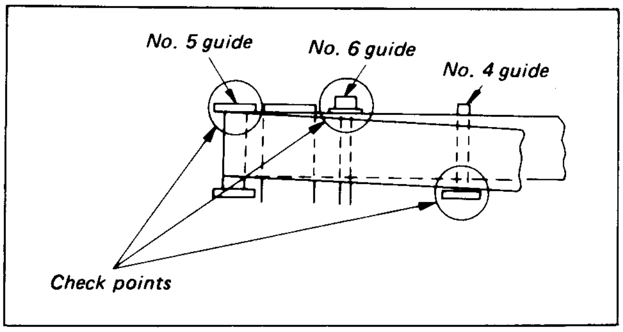


Fig. 4-20.

ii) Exit side
Check if the tape bends and is damaged on the No. 7 guide top flange, the No. 8 guide top flange and the No. 10 guide top and bottom flanges. (The curl of the tape is allowed, but the bend of the tape is not allowed.) (Fig. 4-21)

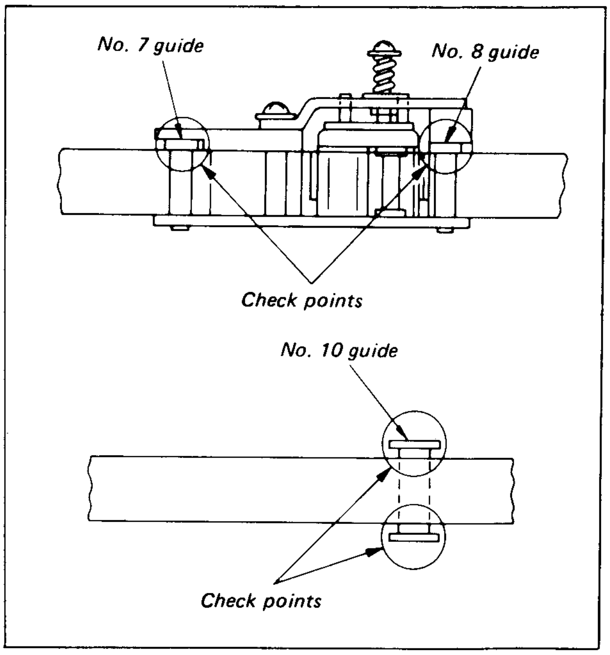


Fig. 4-21.

3) If the tape did not run normally in step 2, readjust the tape path by using KR5-2H.

a) The tape did not run normally on the entrance side, refer to 4-1-2.

b) The tape did not run normally on the exit side, refer to 4-1-3.

SECTION 5
ELECTRICAL ALIGNMENT

All the electrical alignment can be performed by using the equipment mentioned below, the alignment tape, and the PAL colour bar signal (100%).

[Equipment Required]

(1) PAL Colour Monitor TV
(2) Oscilloscope, Dual-trace, Bandwidth... more than 10 MHz with delay mode
(3) Frequency Counter
(4) PAL Colour-Bar Generator
(5) Digital voltmeter
(6) VOM (20 kΩ/V)
(7) Audio Signal Generator
(8) Audio level meter (VTVM)
(9) Attenuator
(10) Alignment Tape, type: KR5-2H, Code No. 8-969-995-52
(11) Alignment Tool (Adjusting screwdriver for semi-fixed resistors and coils)
Jig No. SL-0001, Code No. J-6080-001-A

[Setup for Alignment]

The antenna should be connected correctly to the antenna input terminal of the videocassette recorder.

It is important that the video output signal satisfies the specification because the telecast signal received by the incorporated tuner of the videocassette recorder is utilized as the adjustment signal of the machine. The incorporated tuner should be set to the channel with the best reception. The video signal should be checked with an oscilloscope connected to VIDEO OUT (BNC connector). Verify that the sync signal amplitude is approx. 0.3 Vp-p and the video signal amplitude is approx. 0.7 Vp-p at peak. Adjust the fine tuning while observing the signal and the TV screen so that the burst signal amplitude becomes approx. 0.3V ± 0.1 Vp-p. Also confirm that there is not spikes observed at the sync signal portion. (See Fig. 5-1.)

The video (colour bar) signal for the alignment is shown in Fig. 5-1.

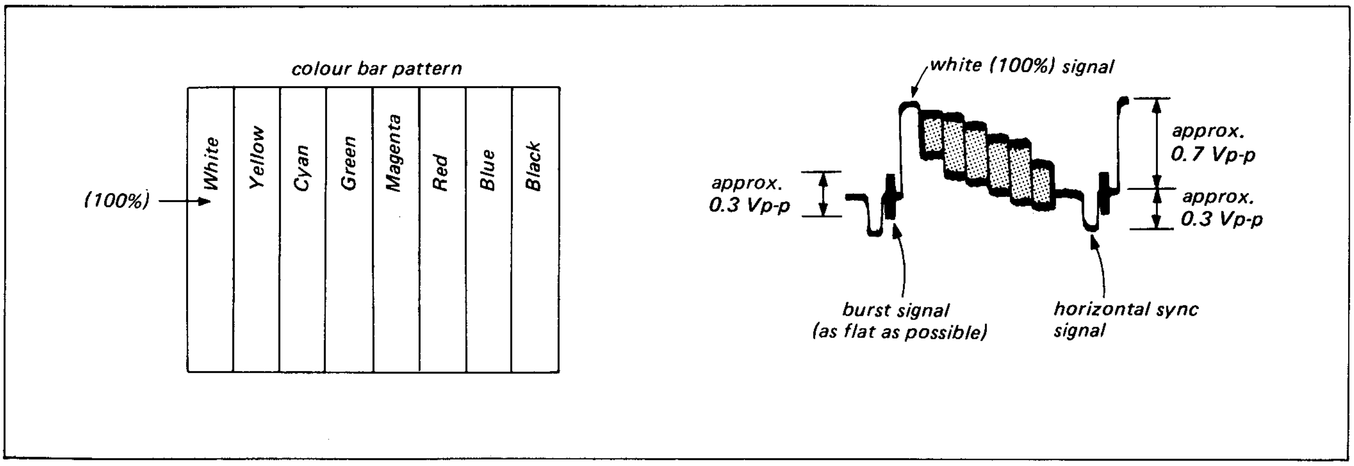


Fig. 5-1. Video (colour-bar) signal

[Alignment Tape]

KR5-2H

	Video signal	Audio signal	Playing time	Use for
1.	Colour bars	3 kHz – 5 dB	5 min	General performance, tape speed checks, switching position adjustment.
2.	Monoscope	333 Hz – 25 dB	5 min	Video head dihedral, audio level adjustment.
3.	RF sweep	5 kHz – 25 dB	5 min	Video, audio frequency characteristics, audio azimuth adjustment marker: 1, 2, 3.58, 4.5, 5.2 MHz
4.	Tracking 1 MHz (CH-B) *1 (Channel B is inserted in every 3 frames.)	1 kHz – 5 dB *2 (Signal is dropped out in the positions where channel B is inserted.)	5 min	Tracking, Audio height adjustments CTL Position check (Check if *1 and *2 are the same position.)

[Alignment Tool for Semi-fixed Variable Resistors and Coils]
Semi-fixed variable resistors and inductances should be adjusted with the alignment tool exclusively prepared for the adjustment of the components. A common screwdriver is too large for adjusting the components from the conductor side of a printed circuit board.

The metal blade of the alignment tool is used for variable resistors and trimmer capacitors and the plastic tip is used for variable inductances.

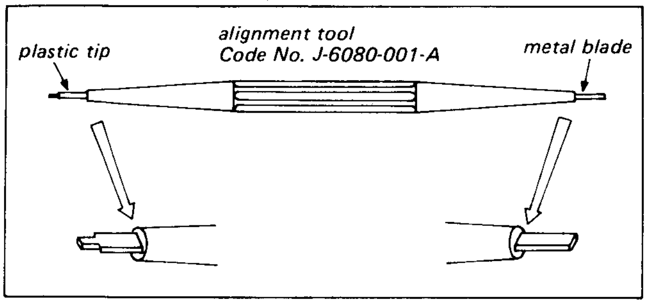

plastic tip
alignment tool
Code No. J-6080-001-A
metal blade

Fig. 5-2. Alignment tool

[Required levels and Impedances of Input and Output]

Video

Input	VIDEO IN: BNC connector
	$1\,\text{Vp-p}\ ^{+1.0}_{-0.5}\,\text{Vp-p}$
	75Ω unbalanced, sync negative
	VIDEO OUT: BNC connector
	1 Vp-p ± 0.1 Vp-p
	75Ω unbalanced, sync negative

Audio

Input	AUDIO IN: phono jacks
	47 kΩ, −10 dBs
	(0 dBs = 0.775V rms)
Output	AUDIO OUT: phono jacks
	Load impedance less than 10 kΩ
	−10 dBs with 47 kΩ load unbalanced

[Colour Bar Signal]
The 100% colour bar signal recorded on the Alignment tape is shown in Fig. 5-3.

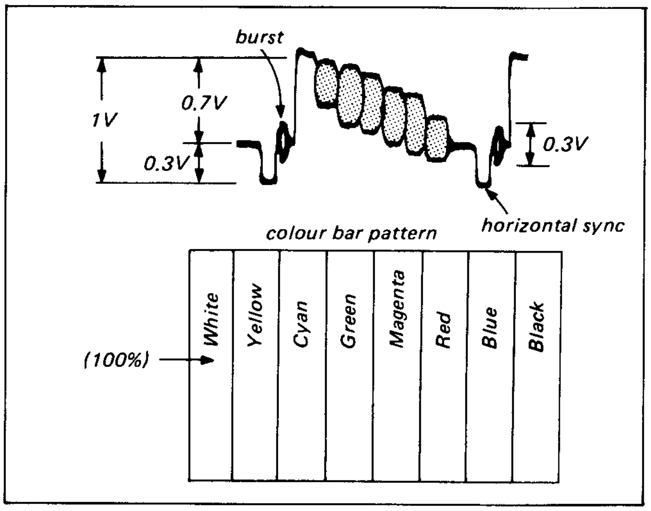
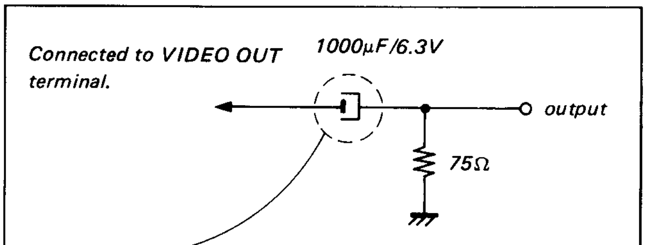

burst
1V
0.7V
0.3V
0.3V
colour bar pattern
horizontal sync
(100%)
White
Yellow
Cyan
Green
Magenta
Red
Blue
Black

Fig. 5-3. Colour bar signal recorded on the alignment tape

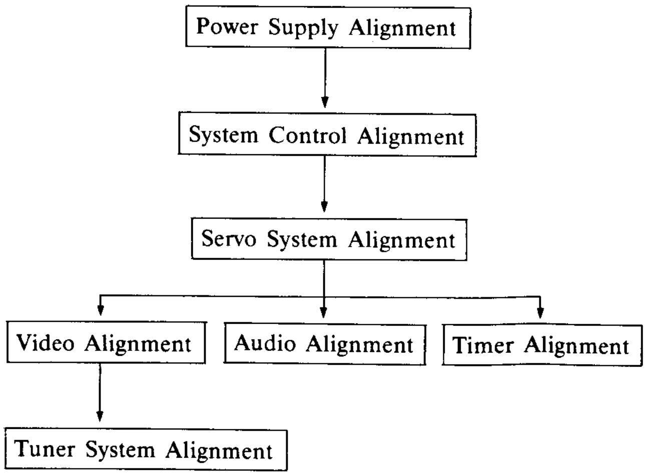
[75Ω Terminating Method]
To terminate the video output terminal follow the steps shown in Fig. 5-4.


Connected to VIDEO OUT terminal.
1000μF/6.3V
output
75Ω

Note: *The machine may be damaged if it is terminated in 75Ω before cutting the DC component.*

Fig. 5-4. 75Ω terminating circuit

[Adjustment procedure]
Adjust in the order given below.


Power Supply Alignment
System Control Alignment
Servo System Alignment
Video Alignment
Audio Alignment
Timer Alignment
Tuner System Alignment

[Adjustment method]

i) Adjust to 900 μsec ± 30 μsec with RV302. (See Fig. 5-8.)

ii) Change connection of CH-2 only to Pin ㉜ of IC301.

iii) Adjust to 900 μsec ± 30 μsec with RV301. (See Fig. 5-9.)

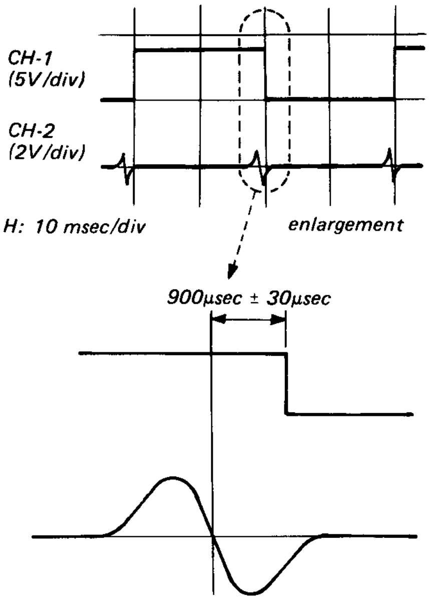

CH-1
(5V/div)
CH-2
(2V/div)
H: 10 msec/div
enlargement
900μsec ± 30μsec

Fig. 5-9. RF switching position adjustment (2)

3) PICTURE SEARCH, Drum Free Speed Adjustment (SS-16 Board)
Mode: PICTURE SEARCH (FWD)
Signal: Alignment tape colour bar or monoscope
Frequency counter: Pin ④ of CN312 (TP404)

[Adjustment method]

Adjust to 64 μsec ± 0.3 μsec with RV310. (See Fig. 5-10.)

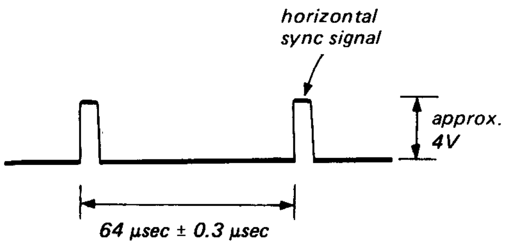

horizontal sync signal
approx. 4V
64 μsec ± 0.3 μsec

Fig. 5-10. PICTURE SEARCH, drum free speed adjustment

5-3-2. Capstan Servo System Alignment

1) Capstan DC Bias Adjustment (SS-16 Board)
Mode: playback
Signal: Alignment tape colour bar or monoscope
Oscilloscope: TP407 (Pin ⑳ of IC301)

[Adjustment method]

Adjust the duty (ratio for A and B) to 50% ± 5% with the RV307.

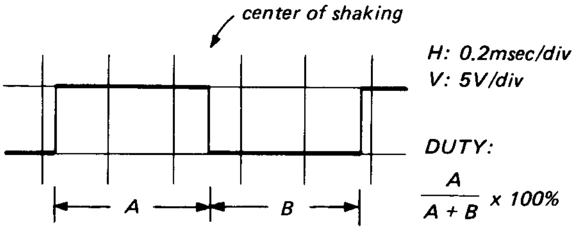

center of shaking
H: 0.2msec/div
V: 5V/div
DUTY:
A/(A + B) x 100%
A
B

Fig. 5-9. Capstan DC bias adjustment

2) PICTURE SEARCH, Capstan DC Bias Adjustment (SS-16 Board)
Mode: PICTURE SEARCH (FWD)
Signal: Alignment tape colour bar or monoscope

[Adjustment method]

i) Set up the picture search (forward) mode and adjust with RV308 so that the progression of noise bars becomes as slow as possible. (See Fig. 5-10.)

ii) Set up the picture search (reverse) mode and check that noise bars do not progress very quickly.

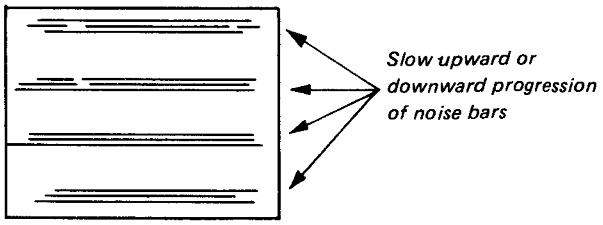

Slow upward or downward progression of noise bars

Fig. 5-10. PICTURE SEARCH, capstan DC bias adjustment

5-1. POWER SUPPLY CHECK (PS-22 Board)

Measure an E-E mode (power supply switch ON).

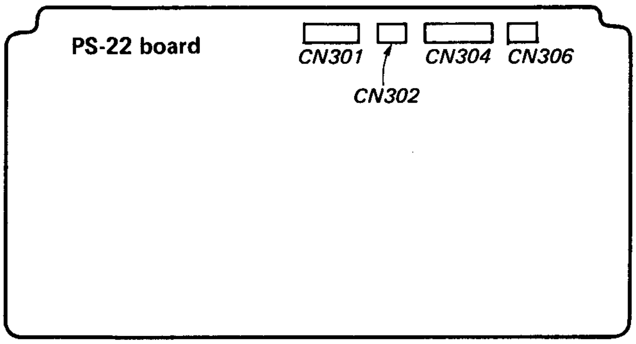


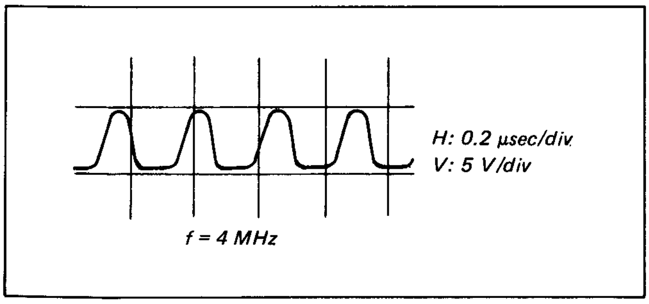
Fig. 5-5. Component layout

1. Unswitched 12V Check
   Pin ⑦ of CN304 shall be 12 ± 0.5V.
2. Switched 12V Check
   Pin ③ of CN301 shall be 12.2 ± 0.2V
3. Switched 9V Check
   Pin ① of CN306 shall be 9.0 ± 0.2V
4. Switched 5V Check
   Pin ① of CN301 shall be 5.2 ± 0.5V

5-2. SYSTEM CONTROL CHECK (SS-16 Board)

1. Clock Frequency Check

Mode: E-E
Signal: None
Frequency counter: Pin ㉖ of IC601 (TP601)
Check: f: 4 MHz



5-3. SERVO SYSTEM ALIGNMENT

Alignment Sequence

1. Drum servo system alignment
2. Capstan servo system alignment

5-3-1. Drum Servo System Alignment

1) Drum Free Speed Adjustment (SS-16 Board)
   Mode: Playback
   Signal: Alignment tape colour bar, or monoscope
   Oscilloscope: CH-1 TP405 (Pin ⑬ of IC301)
   CH-2 TP402 (Pin ㊴ of IC301)

[Alignment method]

Adjust to 553 μsec ± 10 μsec with RV303. (See Fig. 5-7.)

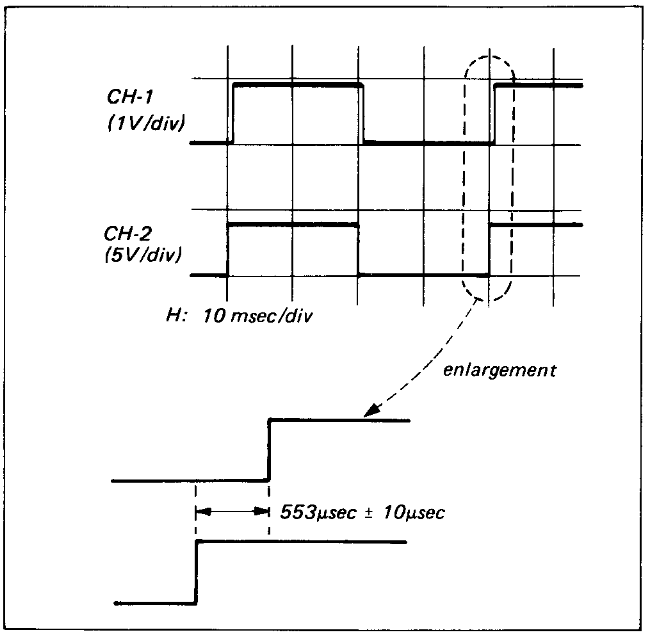


Fig. 5-7. Drum free speed adjustment

2) RF Switching Position Adjustment (SS-16 Board)
   Mode: Playback
   Signal: Alignment tape colour bar or monoscope
   Oscilloscope: CH-1 TP402 (Pin ㊴ of IC301)
   CH-2 Pin ㊵ of IC301

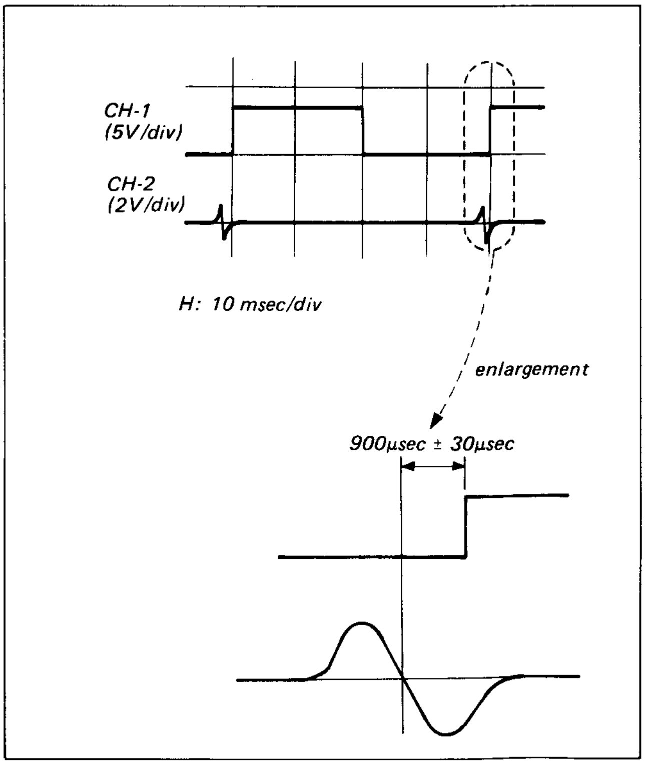


Fig. 5-8. RF switching position adjustment (1)

3) Tracking Center Adjustment (SS-16 Board)

Mode:	Playback
Signal:	Alignment tape colour bar, or monoscope
Oscilloscope:	CH-1 TP405 (Pin ⑬ of IC301) CH-2 TP406 (Pin ⑮ of IC301)

[Adjustment method]

i) Set the TRACKING knob to the center click position.

ii) Adjust to 7.05 msec ± 0.05 msec with RV304. (See Fig. 5-11.)

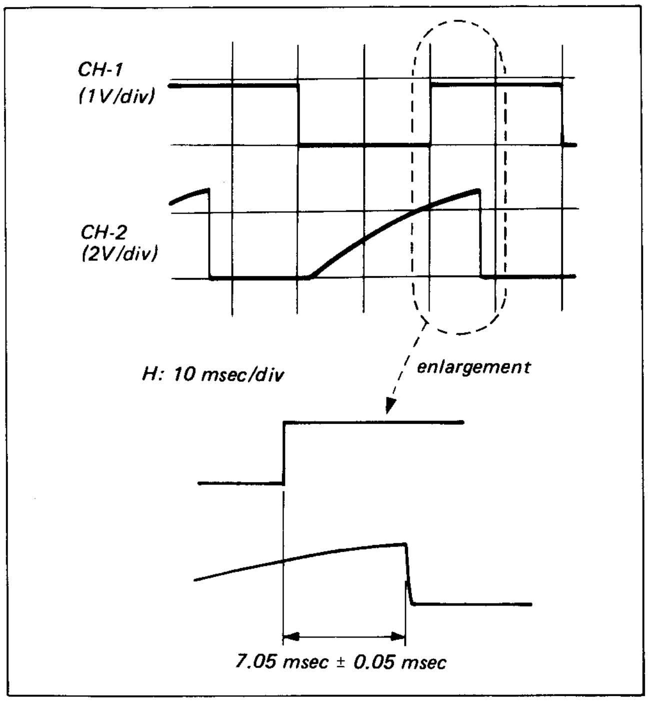


Fig. 5-11. Tracking center adjustment

5-4. PAL VIDEO SYSTEM ALIGNMENT

As a rule, first the playback system is aligned with an alignment tape to check that it operates normally, then the recording system is aligned.

The alignment sequence is shown below. The Y signal and chroma signal systems are aligned for both playback and recording systems.

Colour video signal supplied by the PAL colour bar generator is used as video input signal for video system alignment in the record mode. Check that the sync and colour burst signals conform to the specifications designated in "Set-up for Alignment" in Fig. 5-1.

[Playback System Alignment]

1. Playback frequency characteristic adjustment
2. Expand adjustment
3. Y-comb adjustment
4. Dropout compensator adjustment
5. Playback video level adjustment
6. Carrier balance adjustment
7. Chroma comb filter adjustment
8. Jog exchange chroma level adjustment
9. Shift adjustment

[Record System Alignment]

1. Sync and peak AGC adjustment
2. Carrier set adjustment
3. Deviation adjustment
4. Compress adjustment
5. 1/2 f_H shift adjustment
6. Dark clip and white clip adjustment
7. Y record current adjustment
8. 4.43 MHz REF adjustment
9. Pilot burst flag adjustment
10. ACC adjustment
11. AFC adjustment
12. AFC offset adjustment
13. Pilot burst signal level adjustment
14. Cleaning flag adjustment
15. Chroma record current adjustment

5-4-1. Playback System Alignment

1) Playback Frequency Characteristic Adjustment (RY-1 Board)
   - Adjust both the A and B channels.
   - The B channel indicated by ( ).

   Mode: Playback
   Signal: Alignment tape RF sweep
   Oscilloscope: TP1 (Pin ⑤ of CN2)
   External trigger: TP2 (Pin ④ of CN2)

[Adjustment method]

i) Turn tracking knob to maximum output.
ii) Adjust RV2 to make the 2 MHz amplitude of A and B channels equal. (See Fig. 5-12)
iii) Set the trigger slope to −(+).
iv) Adjust the 5.2 MHz amplitude to 55 — 75% of the 2 MHz amplitude with RV3 (RV4).

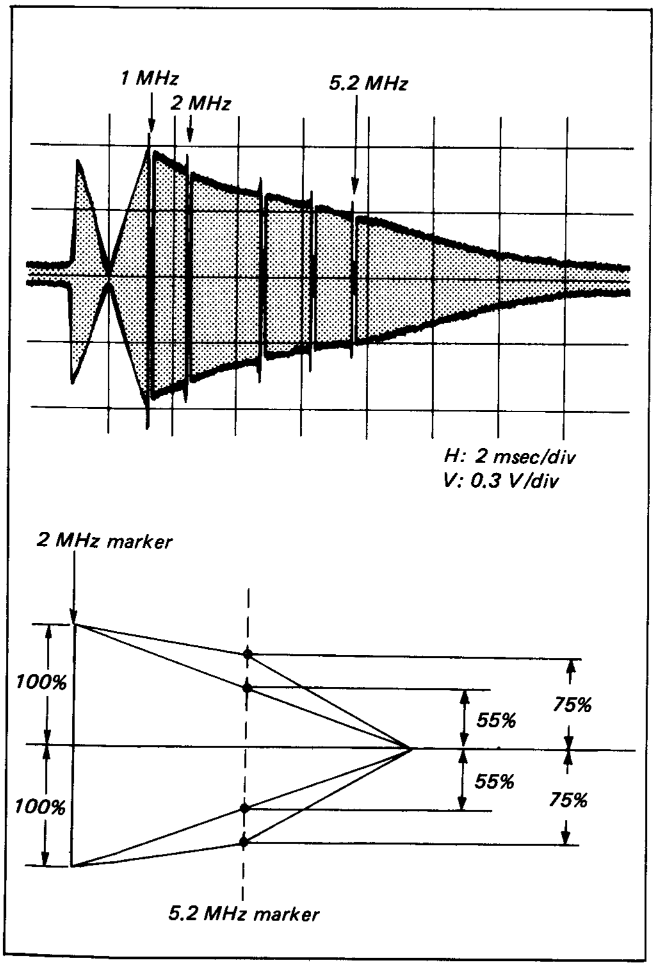


Fig. 5-12. Playback amplifier frequency characteristic adjustment

2) Expand Adjustment (RY-1 Board)

   Mode: Playback
   Signal: Colour bar
   Digital voltmeter: See Fig. 5-13.

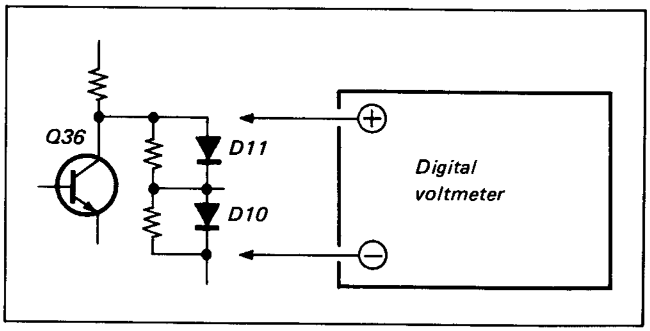


Fig. 5-13.

[Adjustment method]

i) Adjust to 0.43 ± 0.01 Vdc with RV13.

3) Y-Comb Adjustment (RY-1 Board)

   Mode: Playback
   Signal: Colour bar
   Oscilloscope: Pin ⑮ of IC4

[Adjustment method]

i) Adjust RV12 for minimum output. (See Fig. 5-14.)

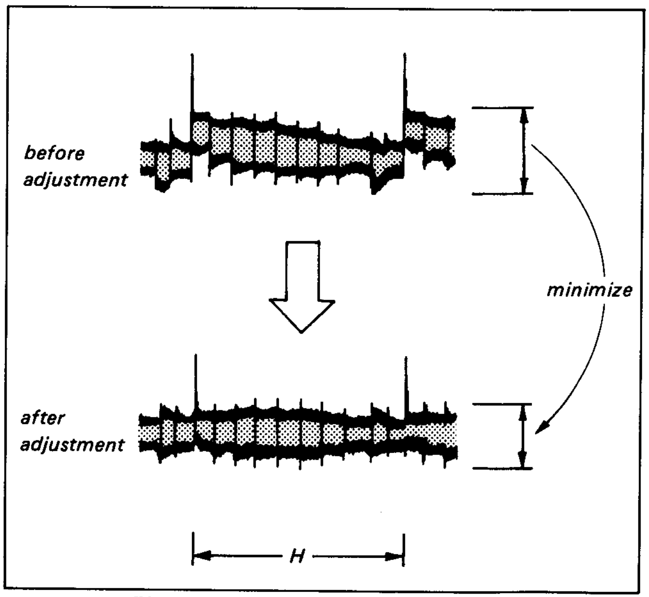


Fig. 5-14. Y-comb adjustment

4) Dropout Compensator Threshold Adjustment (RY-1 Board)

   Mode: Playback
   Signal: A recorded tape with dropouts

[Adjustment method]

i) Turn RV11 fully clockwise (↻) as seen from the pattern side. In this state, dropouts appear on the monitor screen.
ii) Slowly turn RV11 counterclockwise (↺) and set to make the dropouts disappear.
iii) Rewind the tape and verify that the dropouts described in (i) above have disappeared.

5-4-2. Record System Alignment

1) Sync and Peak AGC Adjustment (YC-25 Board)
Mode: E-E
Oscilloscope: VIDEO OUT (75Ω terminated)
Signal: B/W

[Adjustment method]

i) Turn RV10 fully counterclockwise (↺) as seen from the pattern side. (Peak AGC off)
ii) Adjust to 1 Vp-p with RV11.
iii) Turn RV10 clockwise (↻) and set it so that the output level just starts to lower.

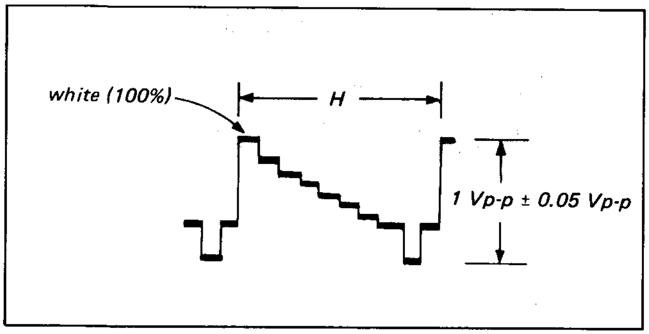


Fig. 5-18. Sync and peak AGC adjustment

2) Carrier Set Adjustment (RY-1 Board)
Mode: E-E
Signal: None
Frequency counter: Pin ④ of IC3

[Adjustment method]

1) Adjust to 3.8 MHz ± 0.04 MHz with RV8.

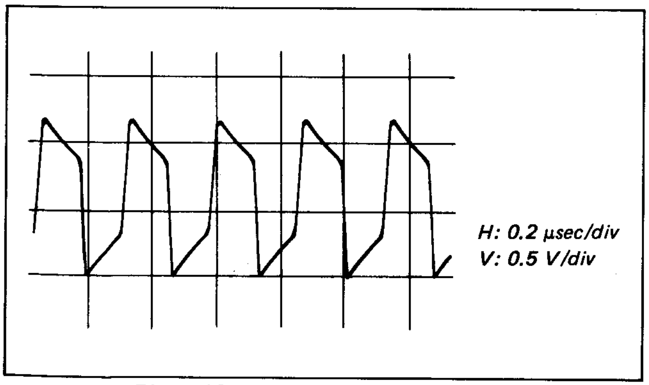


Fig. 5-19. Carrier set adjustment

3) Deviation Adjustment (YC-25 Board)

- The playback system adjustment and the carrier set adjustment in Paragraph 2) above must be completed before making this adjustment.
  Mode: Self-recording and playback
  Signal: Colour bar
  Oscilloscope: Pin ④ of CN001, VIDEO OUT (75Ω terminated)

[Adjustment method]

i) Supply the colour bar signal and set up E-E mode.
ii) Connect the oscilloscope to Pin ④ of CN001.
iii) Adjust the Y signal level to 1 Vp-p with RV012.
iv) Set up RECORD mode.
v) Playback the recorded section of the tape.
vi) Connect the oscilloscope to VIDEO OUT.
vii) Check that the video signal level is 1.0 Vp-p ± 0.05 Vp-p, if the level is outside of this range, repeat Steps iv) through vi) above adjusting with RV012 until the standard value is obtained.

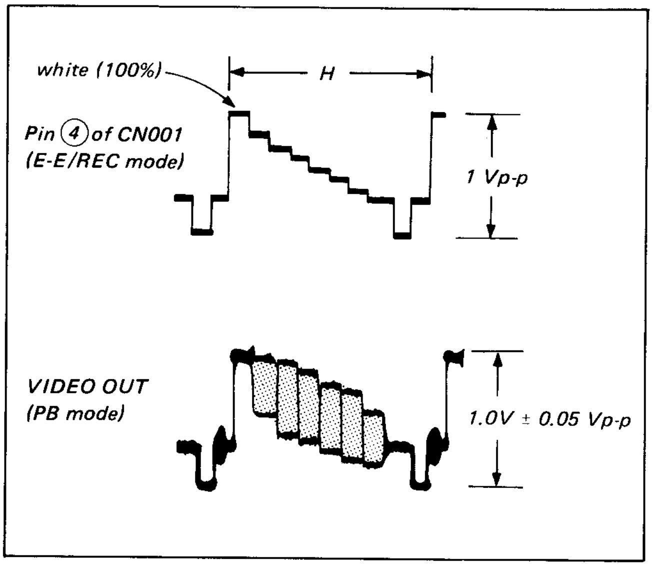


Fig. 5-20. Deviation adjustment

4) Compress Adjustment (RY-1 Board)
Mode: E-E
Signal: None
Digital voltmeter: See Fig. 5-21.

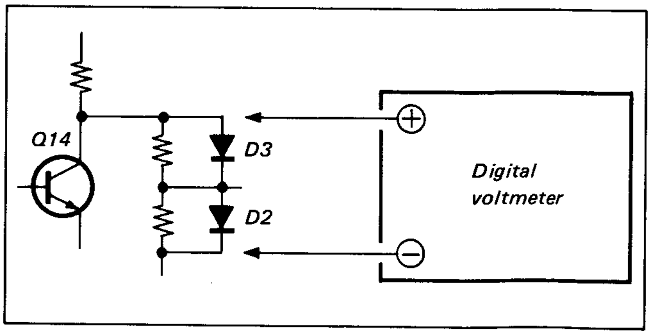


Fig. 5-21.

[Adjustment method]

i) Adjust to 0.3V ± 0.01 Vdc with RV7.

5) 1/2 f_H Shift Adjustment (RY-1 Board)
Mode: Record
Signal: None
Spectrum analyzer: Pin ④ of IC3

5) Playback Video Level Adjustment (RY-1 Board, YC-25 Board)
Mode: Playback
Signal: Alignment tape colour bar
Oscilloscope: VIDEO OUT (75Ω terminated) on YC-25 Board

[Adjusment method]

i) Adjust to 1.0V ± 0.05 Vp-p with RV14 on RY-1 Board.

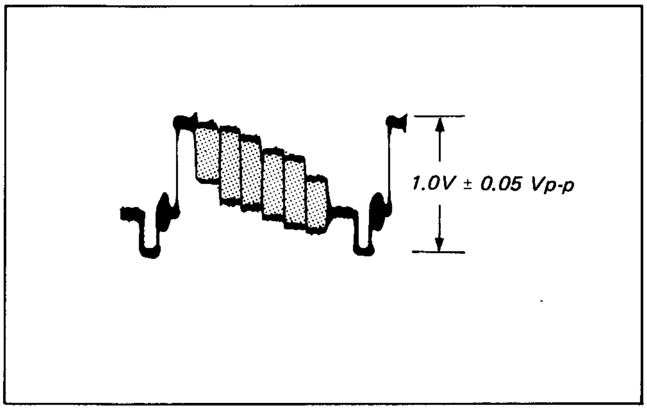


Fig. 5-15. Playback video level adjustment

6) Carrier Balance Adjustment (YC-25 Board)
Mode: Playback
Signal: Alignment tape colour bar
Adjust while observing the monitor TV screen.

[Adjustment method]

i) Minimize beats with RV004.

7) Chroma Comb Filter Adjustment (YC-25 Board)
Mode: Playback
Signal: Alignment tape colour bar
Adjust while observing the monitor TV screen.

[Adjustment method]

i) Minimize beats with RV003 and LV002.

8) JOG Exchange Chroma level Adjustment (YC-25 Board)
Mode: PB • PAUSE (STILL)
Signal: colour bar
Oscilloscope: Pin ⑧ of IC009

[Adjustment method]

i) Adjust RV013 so that the fluctuation of level is minimum. (See Fig. 5-16.)

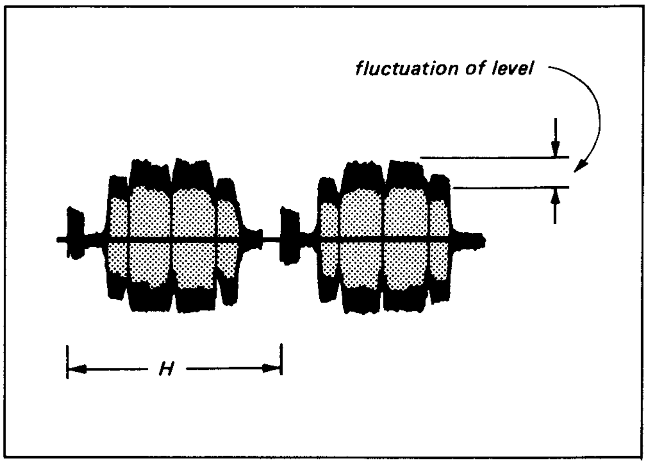
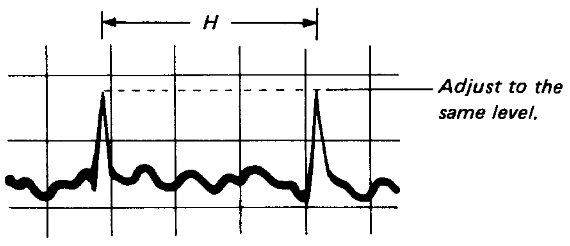


Fig. 5-16. JOG EXCH. C. level adjustment

9) Shift Adjustment (YC-25 Board)
Mode: Playback
Signal: Alignment tape colour bar
Oscilloscope: Base of Q034

[Adjustment method]

i) Align the signal level (per 1H) with RV008.



Note: *Signal sometimes appears on the lower side depending on the trigger condition.*

Fig. 5-17. Shift adjustment

10) ACC Adjustment (YC-25 Board)
Mode: E-E
Signal: Colour bar
Oscilloscope: Pin ㉔ of IC001

[Adjustment method]

i) Adjust to 0.68V ± 0.05 Vp-p with RV001.(See Fig. 5-26.)

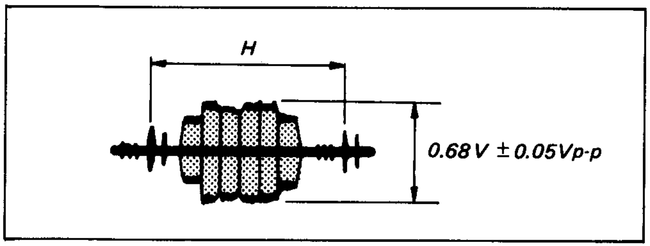

H
0.68 V ± 0.05Vp-p

Fig. 5-26. ACC adjustment

11) AFC Adjustment (YC-25 Board)
Mode: E-E
Signal: Colour bar
Oscilloscope: Pin ⑯ of IC003

[Adjustment method]

i) Adjut to 1.7 Vdc ± 0.1 Vdc with RV006. (See Fig. 5-27.)

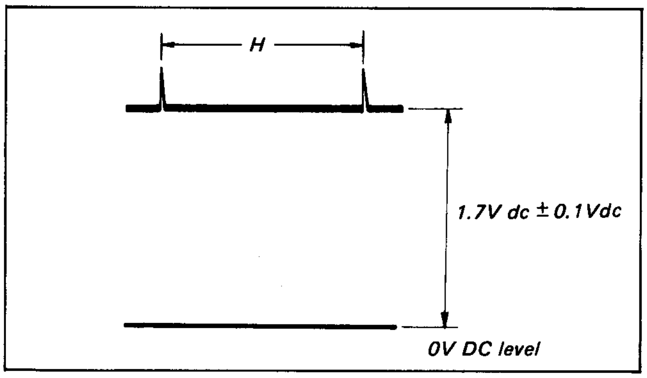

H
1.7V dc ± 0.1Vdc
0V DC level

Fig. 5-27. AFC adjustment

12) AFC Offset Adjustment (YC-25 Board)
Mode: Record
Signal: Colour bar
Oscilloscope: Pin ⑯ of IC003

[Adjustment method]

i) Adjust RV005 so that the fluctuation of DC level is minimum. (See Fig. 5-28.)

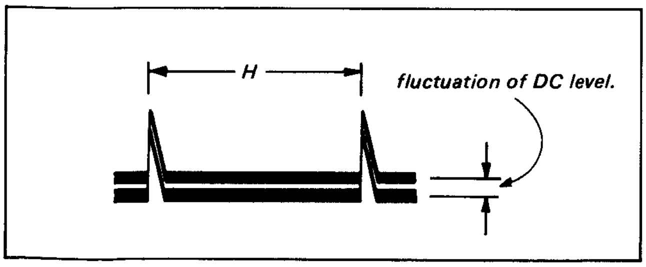

H
fluctuation of DC level.

Fig. 5-28. AFC offest adjustment

13) Pilot Burst Signal Level Adjustment (YC-25 Board)
Mode: E-E
Signal: Colour bar
Oscilloscope: Pin ⑧ of IC002

[Adjustment method]

i) Align the pilot burst signal with the chroma signal level using RV002.

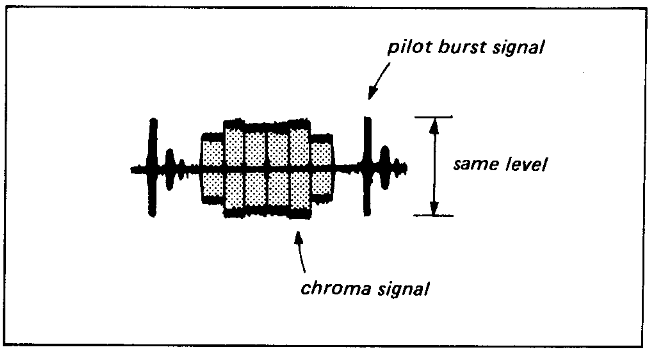

pilot burst signal
same level
chroma signal

Fig. 5-29. Pilot burst signal level adjustment

14) Cleaning Flag Adjustment (YC-25 Board)
Mode: E-E
Signal: Colour bar
Oscilloscope: CH1 Pin ⑥ of IC12
CH2 Pin ⑨ of IC12

[Adjustment method]

i) Adjust to 1.0 μsec ± 0.1 μsec with RV006. (See Fig. 5-30.)

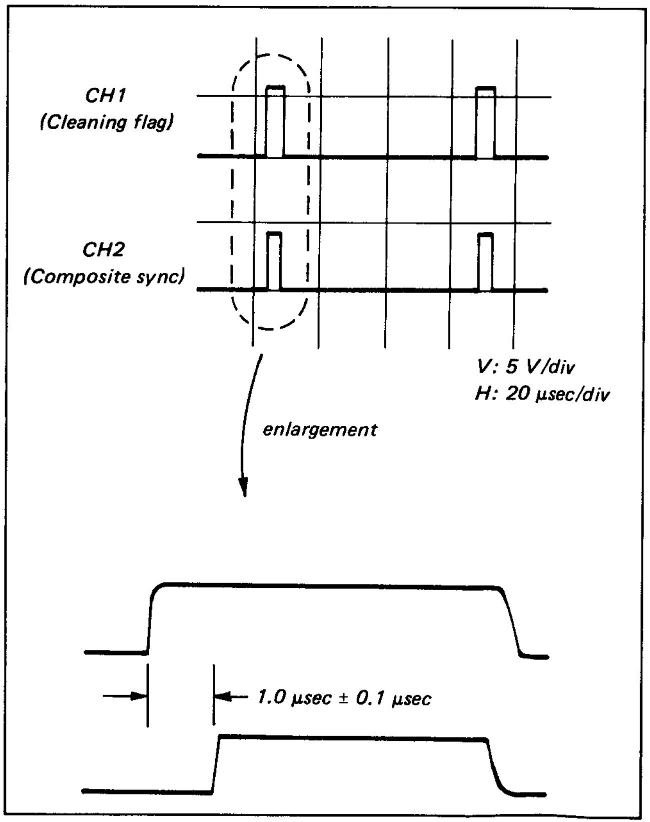

CH1
(Cleaning flag)
CH2
(Composite sync)
V: 5 V/div
H: 20 μsec/div
enlargement
1.0 μsec ± 0.1 μsec

Fig. 5-30. Cleaning flag adjustment

[Adjustment method]

i) Adjust RV6 so that the fluctuation of frequency is 7.8 kHz ± 1.5 kHz.

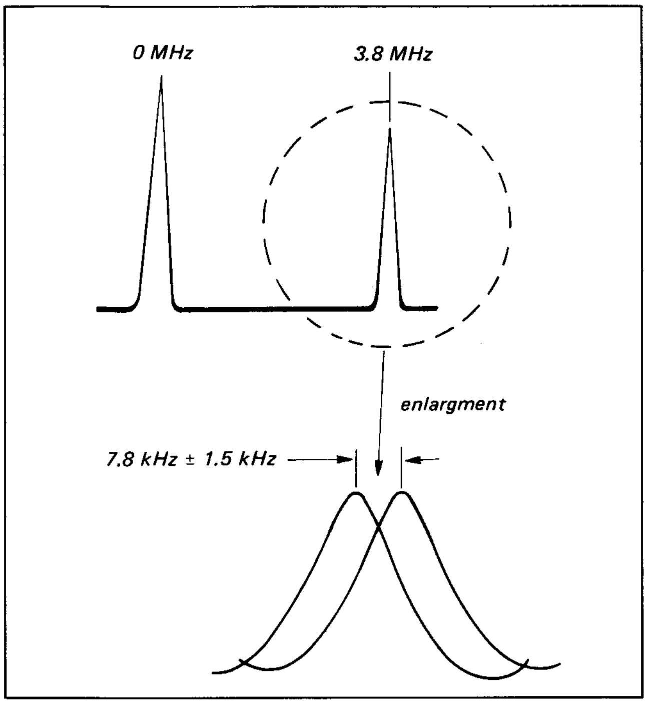

0 MHz
3.8 MHz
enlargment
7.8 kHz ± 1.5 kHz

Fig. 5-22. 1/2 f_H shift adjustment

6) Dark Clip and White Clip adjustment (RY-1 Board)
Mode: E-E
Signal: Colour bar
Oscilloscope: Emitter of Q17

[Adjustment method]

i) Adjust RV10 so that the signal tip (dark peak) is 70% ± 10%. (See Fig. 5-23.)
ii) Adjust RV9 so that the signal tip (white peak) is 220% ± 10%.

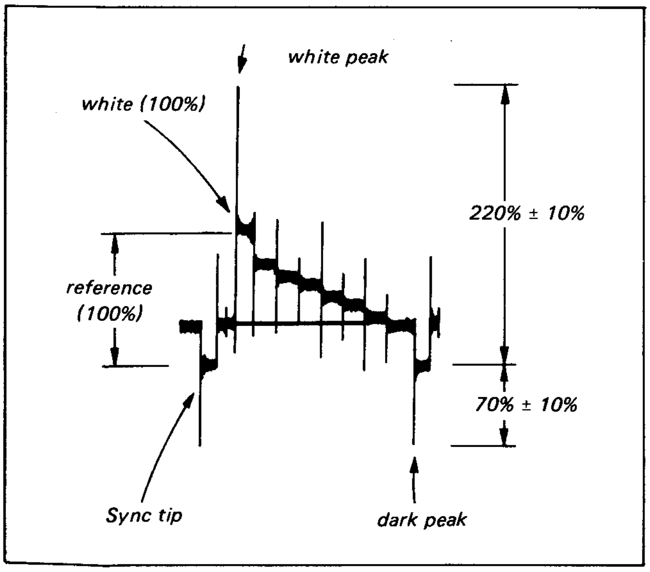

white peak
white (100%)
220% ± 10%
reference (100%)
70% ± 10%
Sync tip
dark peak

Fig. 5-23. Dark clip and white clip adjustment

7) Y Record Current Adjustment (RY-1 Board)
Mode: Record
Signal: None
Oscilloscope: Pin ② of CN3 (TP4)

[Adjustment method]

i) Adjust to 380 mV ± 10 mVp-p with RV1. (See Fig. 5-24)

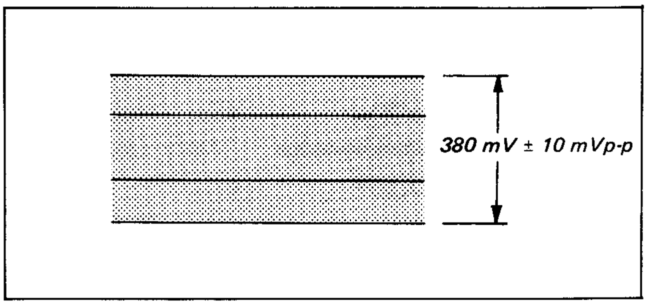

380 mV ± 10 mVp-p

Fig. 5-24. Y record current adjustment

8) 4.43 MHz REF. adjustment (YC-25 Board)
Mode: E-E
Signal: Colour bar
Frequency counter: Pin ⑦ of CN008

[Adjustment method]

i) Adjust to 4.433619 MHz ± 5 Hz with CV001.

9) Pilot Burst Flag Adjustment (YC-25 Board)
Mode: E-E
Signal: Colour bar
Oscilloscope: Pin ⑩ of IC12

[Adjustment method]

i) Adjust to 2.2 μsec ± 0.1 μsec with RV009. (See Fig. 5-25.)

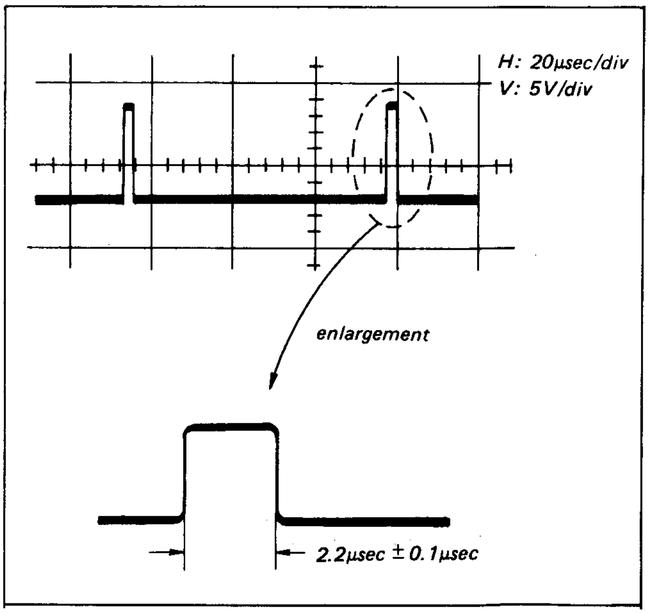

H: 20μsec/div
V: 5V/div
enlargement
2.2μsec ± 0.1μsec

Fig. 5-25. Pilot burst flag adjustment

4. BNR Adjustment

(1) Short R524 (R624) with a jumper wire.
(2) Supply a 1 kHz signal at −5 dBs to the base of Q502 (Q602). (See Fig. 5-33).
(3) Turn on the BNR switch and set up the PLAYBACK mode.
(4) Connect VTVM to pin ④ of IC502 (IC602).
(5) Adjust to −5 dBs with RV503 (RV603).
(6) Change the signal to 10 kHz, −5 dBs.
(7) Adjust to −5 dBs with RV504 (RV604).
(8) Repeat (2) through (7), and ensure that −5 dBs ± 0.5 dB is obtained for both 1 kHz and 10 kHz signals.
(9) Remove the jumper wire after making the adjustment.

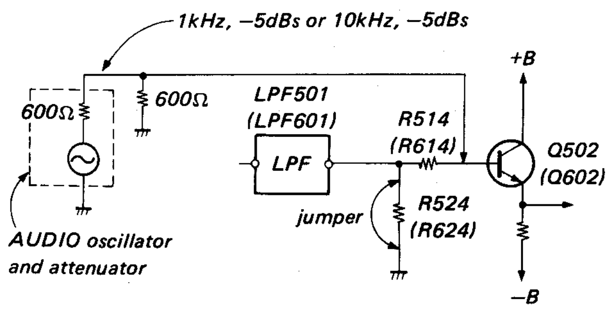


Fig. 5-33. BNR adjustment

5. BNR Characteristic Check

(1) Short R524 (R624) with a jumper wire. (See Fig. 5-33).
(2) Supply a 1 kHz signal at −35 dBs to the base of Q502 (Q602).
(3) Turn on the BNR switch and set up the PLAYBACK mode.
(4) Connect VTVM to pin ④ of IC502 (IC602).
(5) Ensure that the VTVM level is −50 dBs ± 2 dB.
(6) Change the signal to 10 kHz, −35 dBs.
(7) Ensure that the VTVM level is −58 dBs ± 2 dB.
(8) Set up the STOP mode.
(9) Connect VTVM to pin ⑭ of IC502 (IC602).
(10) Ensure that the VTVM level is −24 dBs ± 2 dB.
(11) Change the signal to 1 kHz, −35 dBs.
(12) Ensure that the VTVM level is −22 dBs ± 2 dB.
(13) Remove the jumper wire.

6. Playback Frequency Characteristic Check

(1) Turn off the BNR switch.
(2) Play back 333 Hz and 5 kHz from the alignment tape and check the AUDIO OUT level at 5 kHz is 0^{+1}_{-4} dB relative to the one at 333 Hz.

7. Playback Level Adjustment

(1) Turn off the BNR switch.
(2) Play back the 333 Hz segment of alignment tape.
(3) Adjust RV501 (RV601) so that the AUDIO OUT level is −31 dBs ± 0.5 dB.

8. Bias Oscillator Check

(1) Set the input signal level to zero and set up the RECORD mode.
(2) Connect a frequency counter to pin ⑧ of CN504. The reading should be 65 kHz ± 6.5 kHz. (See Fig. 5-34.)

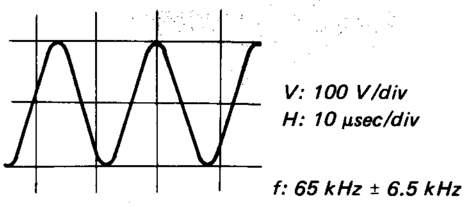


Fig. 5-34. Bias oscillator check

9. Bias Trap Adjustment

(1) Set the input signal level to zero and set up the RECORD mode.
(2) Connect an oscilloscope to pin ⑬ of IC501 (IC601).
(3) Minimize bias leak with TRP501 (TRP601).
Value: minimum level below 0.7 Vp-p. (See Fig. 5-35).

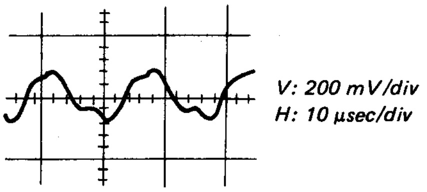


Fig. 5-35. Bias trap adjustment

10. Record Bias Adjustment

(1) Turn on the BNR switch.
(2) Supply a 333 Hz signal at −35 dBs to AUDIO IN.
(3) Record the signal.
(4) Change the signal to 7 kHz, −35 dBs.
(5) Record the signal.
(6) Play back the recorded section of the tape and check that AUDIO OUT level at 7 kHz is ± 1 dB relative to the level at 333 Hz. If the level is outside this range, repeat Steps (2) through (5) adjusting with CV501 (CV601) until the standard is met.

15) Chroma Record Current Adjustment (RY-1 Board)
Mode: Record
Signal: Colour bar
Oscilloscope: Pin ③ of CN3 (TP5)

[Adjustment method]

i) Adjust to 250 mV ± 10 mVp-p with RV5. (See Fig. 5-31.)

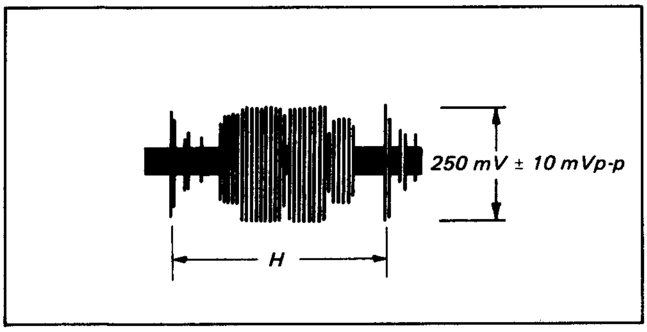


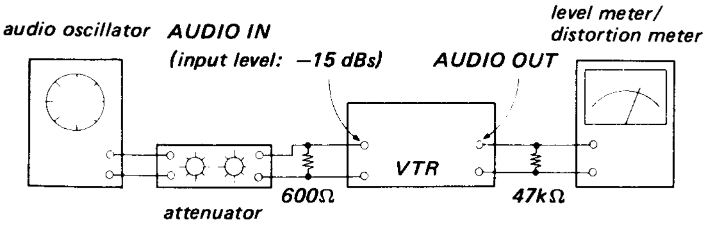
Fig. 5-31. Chroma record current adjustment

5-5. AUDIO SYSTEM ADJUSTMENT (AM-4 Board)

Use a Dynamicron tape for adjustments.

Note:
Set the INPUT SELECT switch to LINE.
Part names enclosed with parentheses are adjustment of CH-2.

[Connection of Related Equipment]



[Adjustment method]

1. ACE head adjustment...See "Mechanical Adjustment"
2. Pre-amp gain adjustment
3. AGC balance adjustment
4. BNR adjustment
5. BNR characteristic check
6. Playback frequency characteristic check
7. Playback level adjustment
8. Bias oscillator check
9. Bias trap adjustment
10. Record bias adjustment
11. Record current adjustment
12. Overall S/N check
13. Overall distortion check

1. ACE Head Adjustment

Refer to "Mechanical Adjustment"

2. Pre-amp Gain Adjustment

(1) Supply a 333 Hz signal at −15 dBs to AUDIO IN.
(2) Set up the E-E mode.
(3) Connect VTVM to pin ④ of IC502 (IC602).
(4) Check that the output level is −5 dBs ± 1 dB.
If neccessary, adjust by soldering. (See Fig. 5-32).

CONNECTION		OUTPUT LEVEL
OPEN		0dB
1	R519-IC501 ⑦	−1.0dB
(1)	(R619-IC601 ⑦)	
2	R560-IC501 ⑨	+1.0dB
(2)	(R660-IC601 ⑨)	

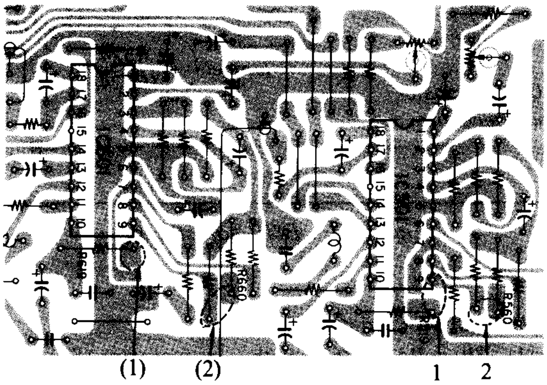


Fig. 5-32. Pre-amp gain adjustment

3. AGC Balance Adjustment

(1) Supply a 333 Hz signal at −10 dBs to AUDIO IN of CH-1 and CH-2.
(2) Set up the E-E mode.
(3) Adjust RV701 so that the difference between the AUDIO OUT level of CH-1 and the one of CH-2 is within 0 dB ± 0.3 dB.

5-7. TIMER SYSTEM ADJUSTMENT (TM-41 Board)

1. Clock Adjustment

(1) Connect a time interval counter to TP001.

(2) Adjust to 15624.85 μsec ± 0.05 μsec with TC001.

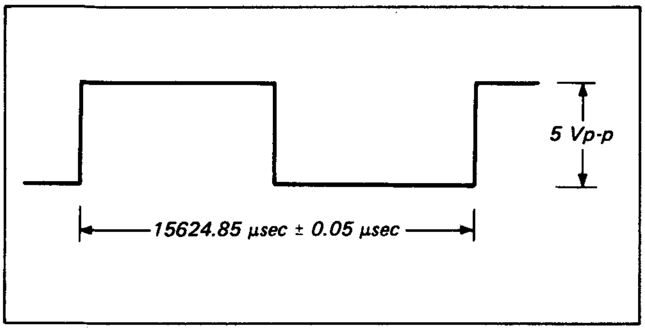

5 Vp-p
15624.85 μsec ± 0.05 μsec

Fig. 5-36. Clock adjustment

11. Record Current Adjustment

(1) Turn off the BNR switch.

(2) Supply a 333 Hz signal at −15 dBs to AUDIO IN.

(3) Record signals.

(4) Play back the recorded section of the tape and check that the AUDIO OUT level is −10 dBs ± 0.5 dB. If the level is outside this range, repeat Steps (2) through (3) above adjusting with RV502 (RV602) until the standard value is obtained.

12. Overall S/N Check

(1) Trun on the BNR switch.

(2) Supply a 333 Hz signal at −15 dBs to AUDIO IN.

(3) Record the signal.

(4) Set the AUDIO IN signal level to zero and record the signal.

(5) Play back the recorded section of the tape and check the AUDIO OUT level difference is greater than 42 dB.

13. Overall Distortion Check

(1) Turn off the BNR switch.

(2) Supply a 333 Hz signal at −15 dBs to AUDIO IN.

(3) Record the signal.

(4) Play back the recorded section of the tape and verify that the distortion of the AUDIO OUT signal is below 8%.

5-6. TUNER SYSTEM ADJUSTMENT (TU-50 Board)

1. Tuner AGC adjustment

(1) Set the DX/LOCAL switch on the rear panel to DX.

(2) Input RF signals (UHF channel. 61 dB $\mu/75\Omega$ open) from a colour bar generator, etc.

(3) Connect a digital voltmeter to pin ④ of IC001.

(4) Adjust RV001 to 7.2V ± 0.1V dc.

2. AFT Adjustment

(1) Set RV002 to the mechanical center.

(2) Input RF signals, and adjust PRESET VR finely for the best picture quality, while watching the monitor screen.

(3) Push the AFT switch to turn on the AFT function, and make the following adjustments.

(4) Connect a digital voltmeter to pin ⑤ of IC001.

(5) Adjust T004 to 6V dc.

(6) Connect a digital voltmeter across pins ⑤ and ⑥ of IC001.

(7) Adjust RV002 to 0V ± 0.25V dc.

3. Stereophonic separation adjustment

Connect the sound-multiplexed TV test signal generator to the AERIAL IN terminal before performing adjustment.

(1) Connect the signal generator to the VTR, setting it as follows:

Picture frame : Color bar
Mode of sound-channel: Stereophonic
Left sound-channel : Unused
Right sound-channel : Modulated at 1 kHz

(2) Confirm that both stereophonic indicators (LED's A and B) are lit.

(3) Connect the oscilloscope probe at pin ② on CN005.

(4) Minimize the crosstalk component of the signal level at 1 kHz by using RV003.

[Colour Bar Signal]

The 100% colour bar signal recorded on the Alignment tape is shown in Fig. 5-38.

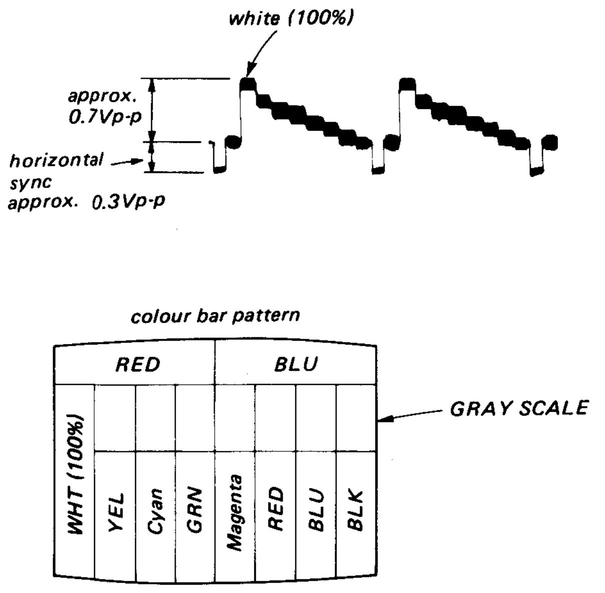

white (100%)
approx. 0.7Vp-p
horizontal sync
approx. 0.3Vp-p
colour bar pattern
RED
BLU
GRAY SCALE
WHT (100%)
YEL
Cyan
GRN
Magenta
RED
BLU
BLK

Fig. 5-38. Colour bar signal recorded on the alignment tape

1) SECAM ACK *fo* Adjustment (YC-25 Board)
   Mode: E-E
   Signal: SECAM colour bar
   Oscilloscope: Pin ⑨ of IC007

   [Adjustment method]
   i) Adjust LV004 until the amplitude is a maximum. (See Fig. 5-39)

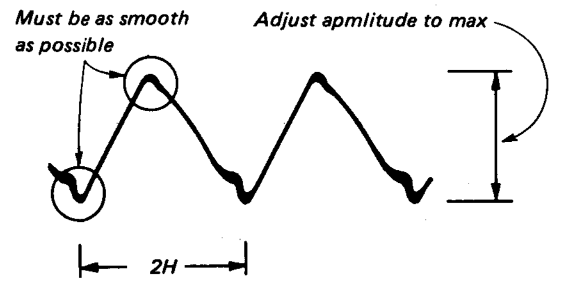


Fig. 5-39. SECAM ACK fo adjustment

2) Bell Filter Adjustment (YC-25 Board)
   Mode: E-E
   Signal: SECAM colour bar
   Oscilloscope: Pin ① of CN001

[Adjustment method]
i) Adjust LV001 until the waveform is flat. (See Fig. 5-40)

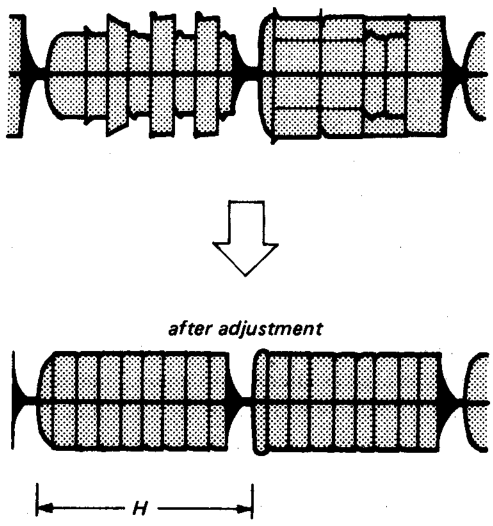


Fig. 5-40. Bell filter adjustment

3) Counter Bell Filter Adjustment (YC-25 Board)
   Mode: Self-recording and playback
   Signal: SECAM colour bar
   Adjust while observing the monitor TV screen.

   [Adjustment method]
   i) Record SECAM colour bar signals.
   ii) Playback the recorded signals.
   iii) While observing the monitor TV screen, adjust LV003 until the border between the red and blue areas is at its cleanest (minimum beats).

4) SECAM ACK Adjustment (YC-25 Board)
   Mode: E-E
   Signal: SECAM colour bar
   Oscilloscope: Pin ⑨ of IC007

   [Adjustment method]
   i) Adjust RV007 to 4.0V ± 0.1 Vp-p.

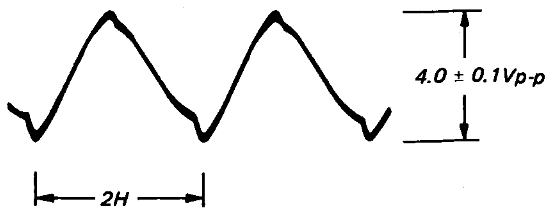


Fig. 5-41. SECAM ACK adjustment

5-8. SECAM VIDEO SYSTEM ALIGNMENT

- Make this adjustment after aligning the PAL video system.
- For this adjustment, use the equipment listed below in conjunction with an alignment tape and SECAM colour bar signals.

[Equipment Required]

(1) SECAM Colour Monitor TV
(2) Oscilloscope, Dual-trace, Bandwidth ... more than 10 MHz with delay mode
(3) SECAM Colour-Bar Generator
(4) Alignment Tape, Type: KR5-1J, Code No. 8-969-996-03

[Setup for Alignment]

In this alignment, video signals obtained from the pattern generator will be used as alignment signals. Therefore, the video output signals should be within the specifications. Verify video signals by connecting an oscilloscope to VIDEO OUT connector (75Ω terminated). Check that the video signals are flat when the amplitude of the horizontal sync signal is about 0.3 Vp-p, the amplitude of the video portion is about 0.7 Vp-p, and the amplitude of the burst signal is about 0.3 Vp-p.
The video signal (colour-bar signal) used in this alignment is shown in Fig. 5-37.

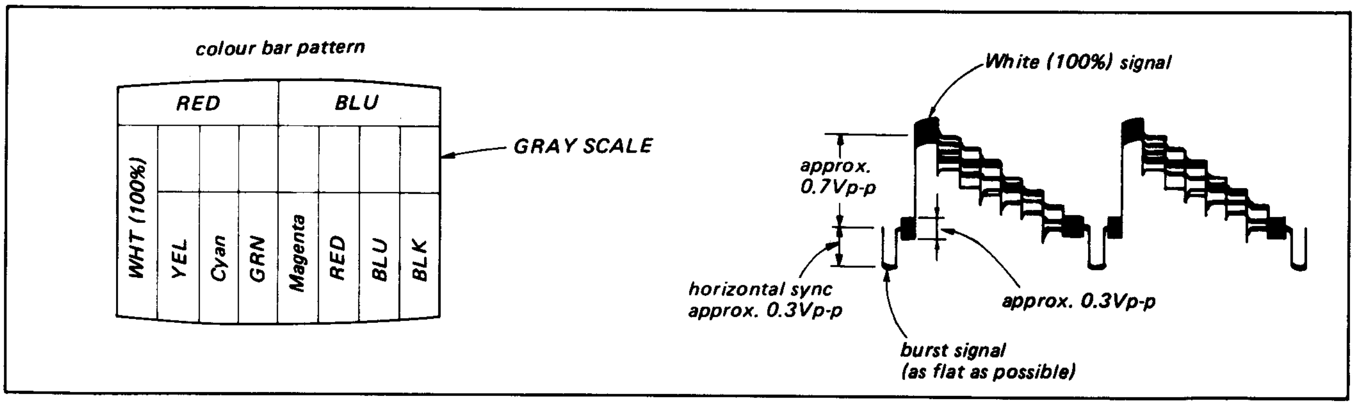
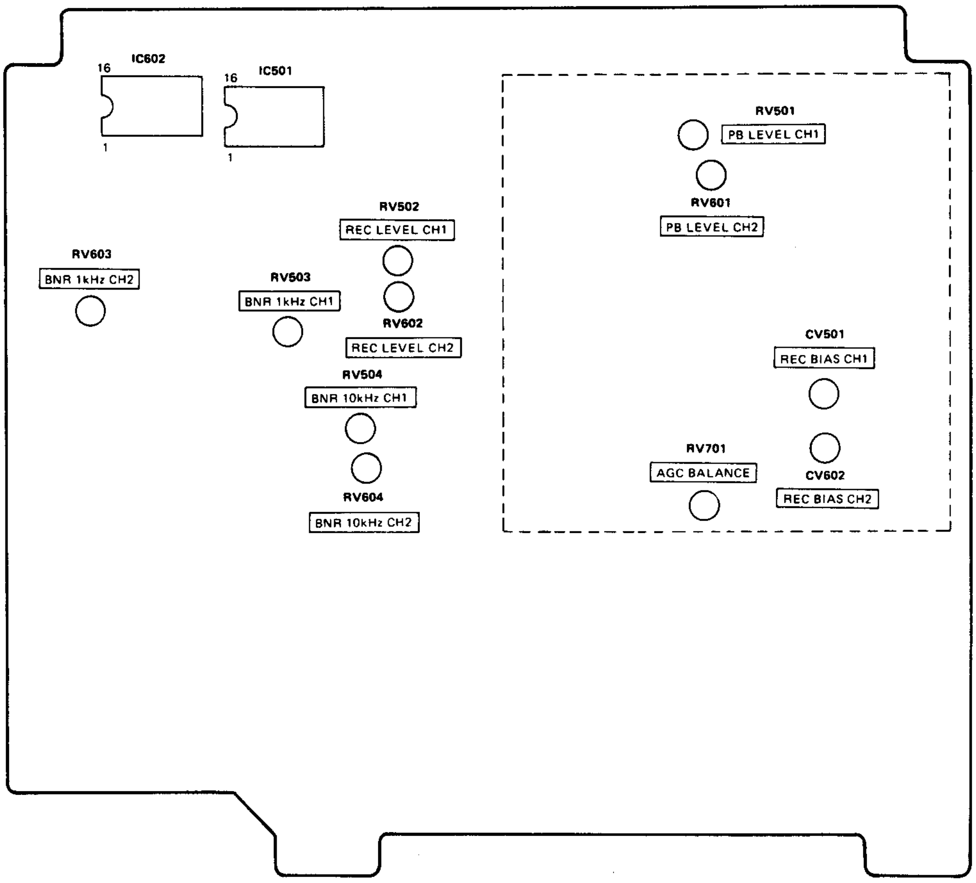

colour bar pattern
RED
BLU
WHT (100%)
YEL
Cyan
GRN
Magenta
RED
BLU
BLK
GRAY SCALE
White (100%) signal
approx. 0.7Vp-p
horizontal sync approx. 0.3Vp-p
approx. 0.3Vp-p
burst signal (as flat as possible)

Fig. 5-37. SECAM video (colour bar) signal

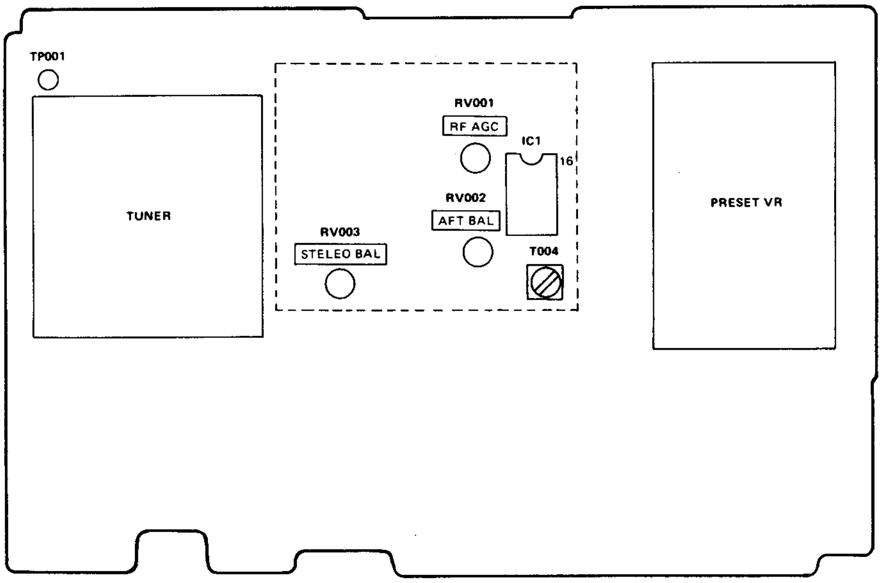
[Alignment Tape]
KR5-1J

	Video signal	Audio signal	Playing time	Use for
1.	Colour bars	3 kHz – 5 dB	5 min	General performance, tape speed checks, switching position adjustment.
2.	Monoscope	333 Hz – 25 dB	5 min	Video head dihedral, audio level adjustment.
3.	RF sweep	5 kHz – 25 dB	5 min	Video, audio frequency characteristics, audio azimuth adjustment marker: 1, 2, 3.58, 4.5, 5.2 MHz
4.	Tracking 1 MHz (CH-A) *1 (Channel B is inserted in every 3 frames.)	1 kHz – 5 dB *2 (Signal is dropped out in the positions where channel B is inserted.)	5 min	Tracking, Audio height adjustments CTL Position check (Check if *1 and *2 are the same position.)

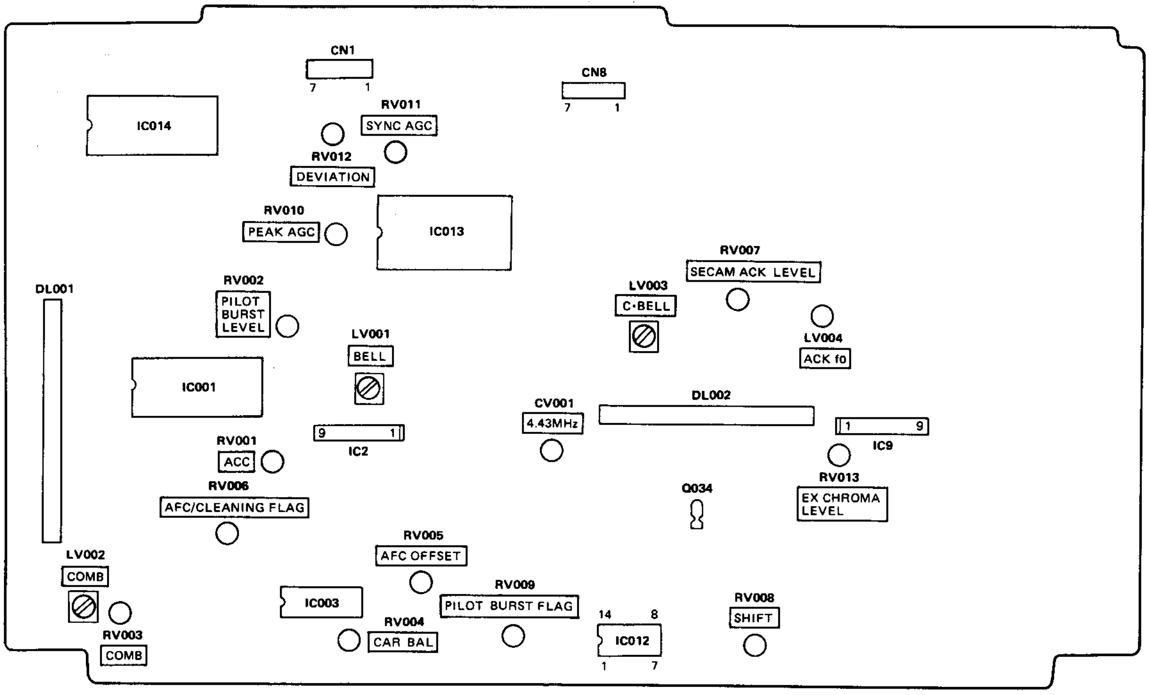
AM-4 BOARD – COMPONENT SIDE –


IC602
16
1
IC501
16
1
RV501
PB LEVEL CH1
RV601
PB LEVEL CH2
RV502
REC LEVEL CH1
RV603
BNR 1kHz CH2
RV503
BNR 1kHz CH1
RV602
REC LEVEL CH2
RV504
BNR 10kHz CH1
RV604
BNR 10kHz CH2
CV501
REC BIAS CH1
RV701
AGC BALANCE
CV602
REC BIAS CH2

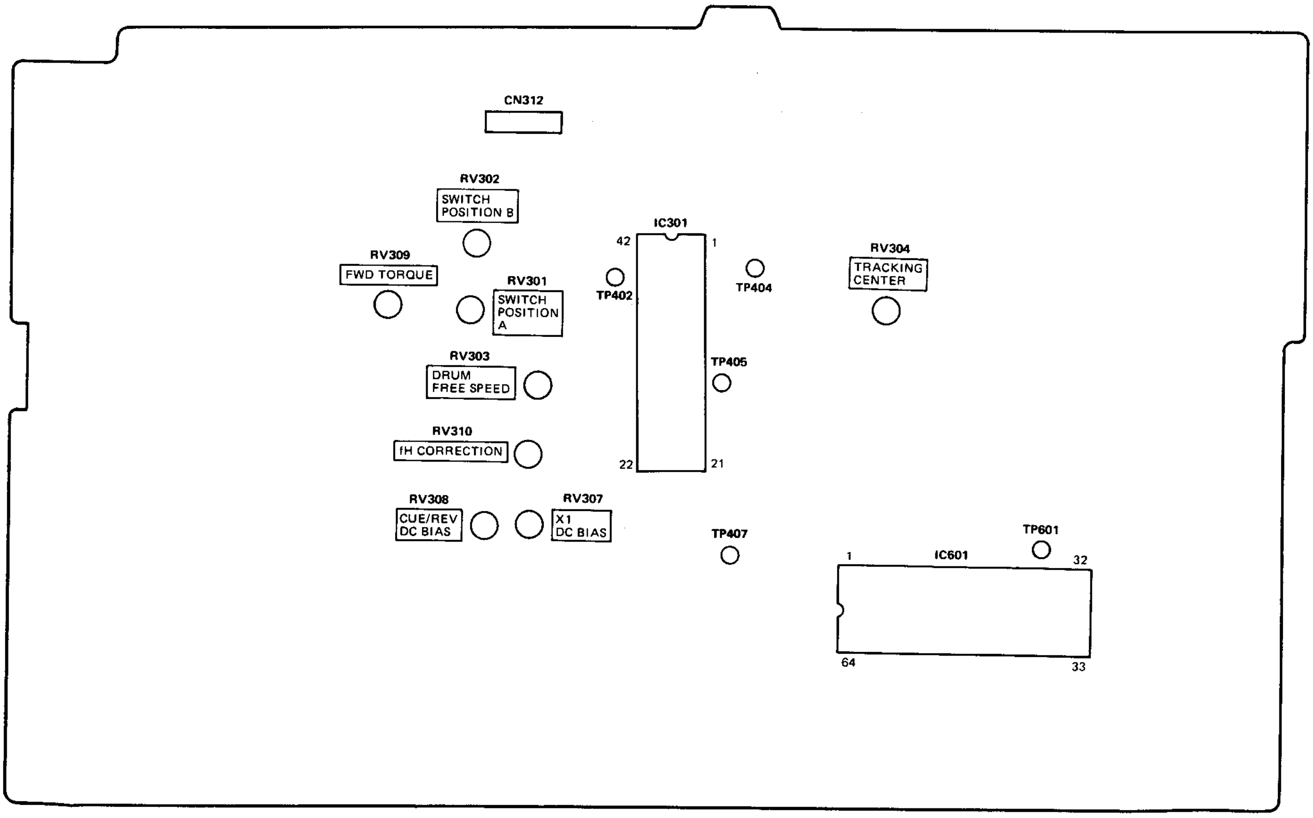
TU-50 BOARD – COMPONENT SIDE –


TP001
TUNER
RV001
RF AGC
IC1
16
RV002
AFT BAL
RV003
STELEO BAL
T004
PRESET VR

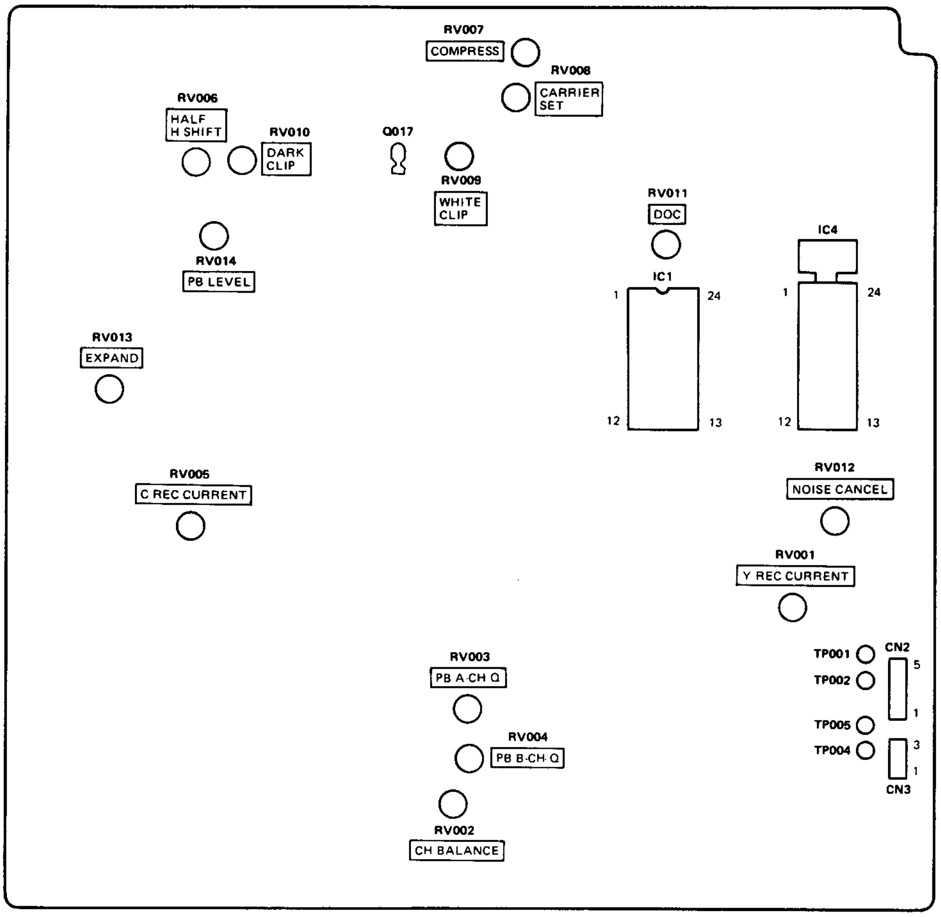
YC-25 BOARD – COMPONENT SIDE –


CN1
7
1
CN8
7
1
IC014
RV011
SYNC AGC
RV012
DEVIATION
RV010
PEAK AGC
IC013
RV007
SECAM ACK LEVEL
LV003
C·BELL
LV004
ACK fo
DL001
RV002
PILOT BURST LEVEL
LV001
BELL
IC001
CV001
4.43MHz
DL002
9
1
IC2
1
9
IC9
RV001
ACC
RV006
AFC/CLEANING FLAG
Q034
RV013
EX CHROMA LEVEL
LV002
COMB
RV005
AFC OFFSET
IC003
RV009
PILOT BURST FLAG
RV008
SHIFT
RV003
COMB
RV004
CAR BAL
14
8
IC012
1
7

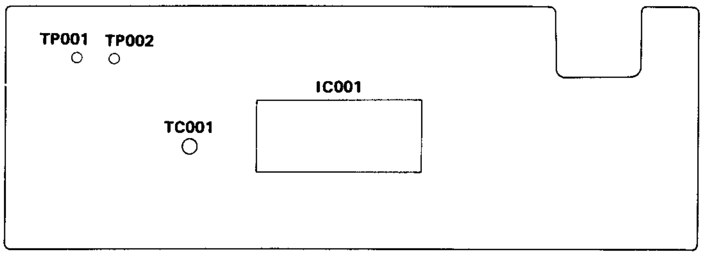
SS-16 BOARD – CONDUCTOR SIDE –


CN312
RV302
SWITCH POSITION B
IC301
42
1
RV309
FWD TORQUE
RV301
SWITCH POSITION A
TP402
TP404
RV304
TRACKING CENTER
RV303
DRUM FREE SPEED
TP405
RV310
fH CORRECTION
22
21
RV308
CUE/REV DC BIAS
RV307
X1 DC BIAS
TP407
TP601
1
IC601
32
64
33

RY-1 BOARD – COMPONENT SIDE –


RV007
COMPRESS
RV008
CARRIER SET
RV006
HALF H SHIFT
RV010
DARK CLIP
Q017
RV009
WHITE CLIP
RV011
DOC
IC4
RV014
PB LEVEL
IC1
1
24
12
13
RV013
EXPAND
RV005
C REC CURRENT
RV012
NOISE CANCEL
RV001
Y REC CURRENT
TP001
TP002
TP005
TP004
CN2
5
1
3
1
CN3
RV003
PB A-CH Q
RV004
PB B-CH Q
RV002
CH BALANCE

TM-41 BOARD – COMPONENT SIDE –


TP001
TP002
IC001
TC001